a W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

SEPTEMBER, 1957

Man-Made Fibers
50-page section begins page 113

How Mills Run Synthetics
page 119

Properties of Synthetics
chart page 129

Textured Filament Yarns
page 136

What Makes a Fabric Sell?
page 141

Dyeing Synthetic Fibers
page 144

Finishing Man-Made Fibers
page 152

Back-Up Your Lube Program!
page 170

Posters for Card Rooms
page 163

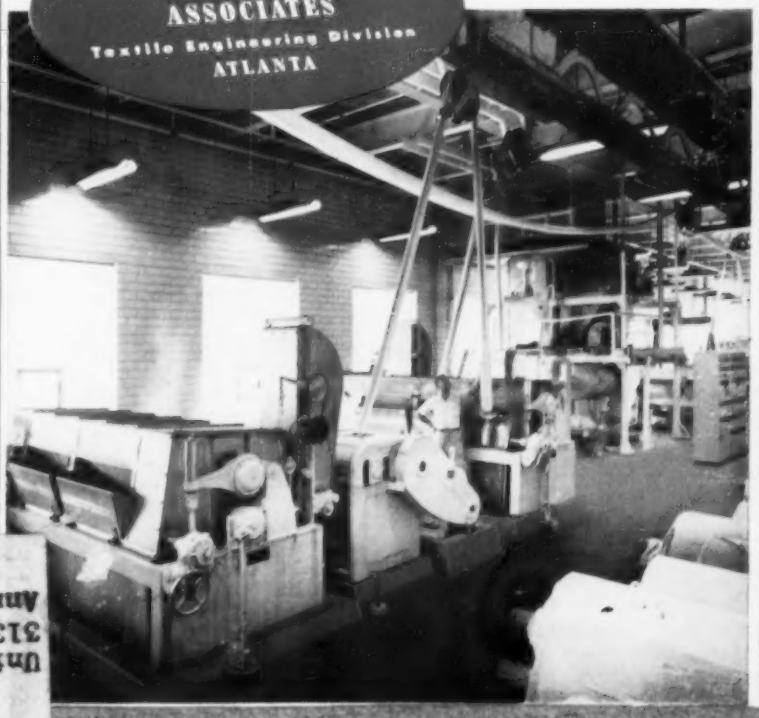
Knitting Section
pages 201-213

Complete List of Contents
pages 3 and 4

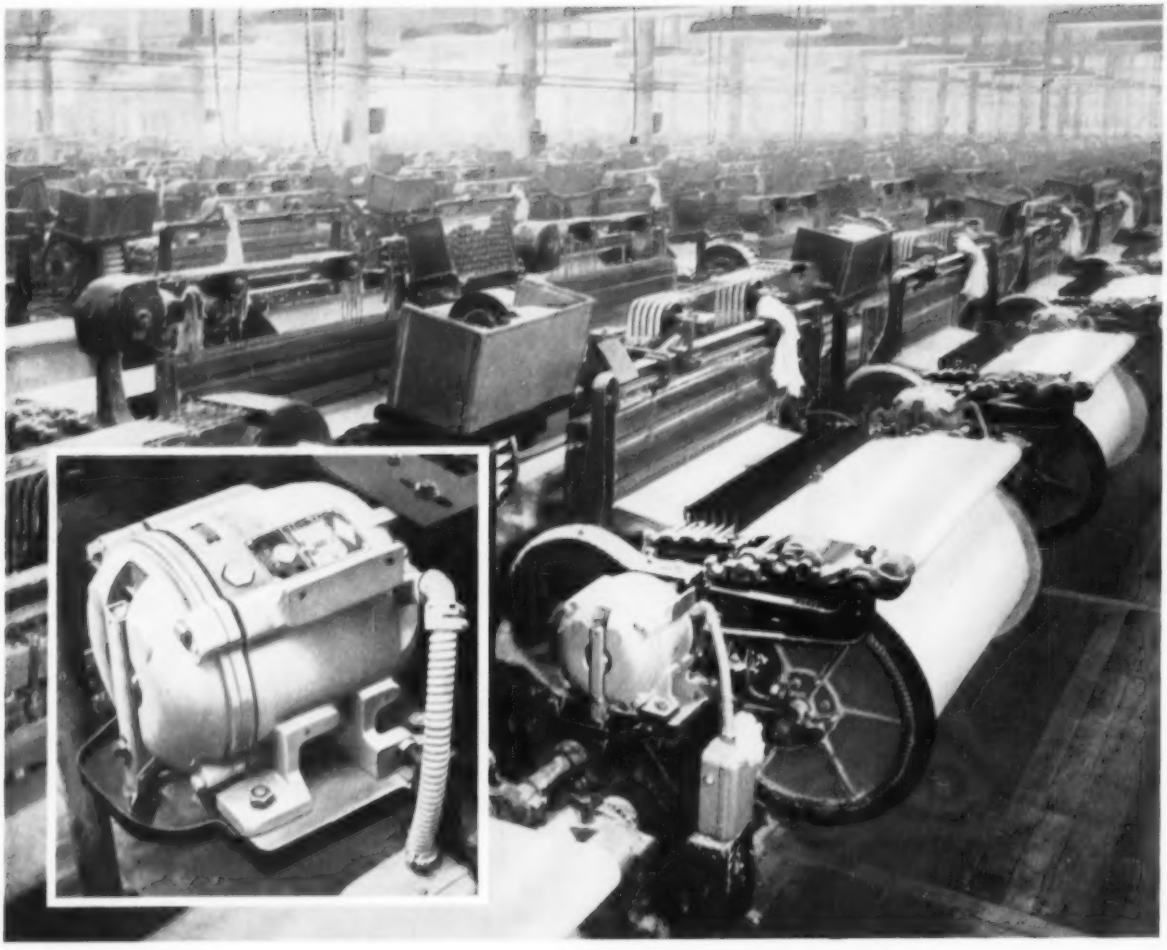
Textile Engineering
BLEACHING & FINISHING

Continuous processing in all phases of textile finishing has already proved its ability to cut production costs, increase production and overall profit. Many leaders in the bleaching and finishing field have already tooled up to engage in this faster, more profitable form of production. On hand, to blueprint the modernization, the production layout, and the new buildings that house many of the nation's most modern operations, have been the skilled planners in the Textile Engineering Division of Robert and Company Associates. An engineering survey of your existing operations will enable you to better judge your expansion and profit potential, as our more than 40 years experience in all phases of textile engineering has helped others.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA



University Microfilms
313 No First St
Ann Arbor Mich 4



AT CONE MILLS

DIEHL transmitters improve product quality

Three hundred Draper looms powered by the latest type DIEHL Power Transmitters were recently installed as part of an important new modernization program at Cone Mills Corporation's Minneola Plant, Gibsonville, N. C., with most satisfactory results in the improvement of loom performance and product quality.

DIEHL Power Transmitters were developed especially for Draper looms, and feature a fast, positive clutch-brake mechanism combined with an inverted type motor which provides high inertia without need for a separate flywheel. This design produces a constant steady pull for more efficient weaving and better quality greige goods, in the opinion of a plant official. "Increased efficiency of looms will be joined by lower operating costs because of the combination of Draper X2 looms and DIEHL Transmitters," he said. The looms now run at 186 picks per minute.

Cone Mills plant officials are favorably impressed with the positive action of the clutch-brake mechanism, the pinion driving shaft construction which eliminates the thrust bearing on the loom, the speed and ease of removal and replacement of the transmitter for inspection and servicing, the totally enclosed housing design which protects against weave room lint and fly, and the negligible maintenance and down-time costs.

DIEHL Power Transmitters can increase production and efficiency—at lower operating costs and less down-time—in your mill. Specify them for your looms.

DIEHL MANUFACTURING COMPANY
Electrical Division of
THE SINGER MANUFACTURING COMPANY
Finderne Plant, SOMERVILLE, N. J.

Diehl

☐ Please send me Consolidated Motor Catalog and Price List No. TI-9 3540

☐ Please send me Textile Motor Bulletin No. TI-9 3526

NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

Baltimore • Chamblee, Ga. • Charlotte • Chicago • Cincinnati • Los Angeles • Milwaukee • Needham, Mass. • New York • Philadelphia • Syracuse

RINGS

DRAPER "MIRROR-GOLD"

Improve break-in schedules with new "Mirror-Gold" rings

Mill tests prove that the new *"Mirror-Gold"* ring improves break-in schedules while *retaining all the advantages* of the famed DRAPER mirror-finish ring.

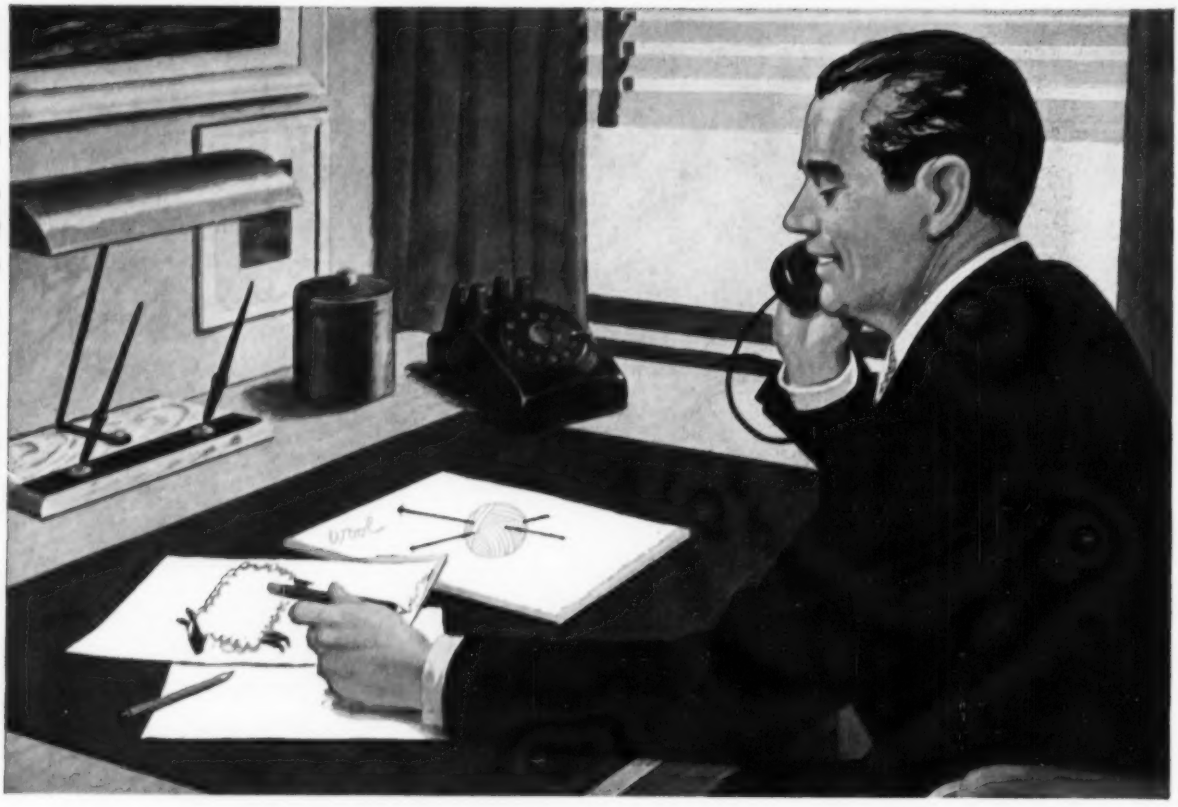
Identified by its golden color, this new ring increases Traveler life and reduces ends down.

For the maximum in ring economy, performance and service . . . specify DRAPER *"Mirror-Gold."*

DRAPER CORPORATION

Hopedale, Mass.

Atlanta, Ga.
Greensboro, N.C.
Spartanburg, S.C.



Heard the Latest About Wool Bleaching?

Renewed consumer interest in wool draws attention again to several of Becco's exclusive wool bleaching processes which may be profitable to you.

Becco's Dry-in Bleach Process, for example, uses hydrogen peroxide with sulfuric acid in the last bowl of the scouring train to give appreciable improvement in color of raw stock and levelling for subsequent dyeing.

The Becco Cold Steep Process impregnates raw stock with peroxide bleach liquor, then bleaches overnight. Other Becco processes are available for package bleaching of yarn and jig bleaching of piece goods . . . still others for the bleaching of cashmere, mohair, camel hair, alpaca, vicuna, and other hair fibers.

Any Becco field engineer or factory representative can inform you on Becco wool bleaching processes. Becco processes are the result of 30 years' research in the application of peroxygen chemicals to the needs of American industry.

BECCO CHEMICAL DIVISION
Food Machinery and Chemical Corporation
Station B, Buffalo 7, New York

BUFFALO • BOSTON • CHARLOTTE, N.C. • CHICAGO
NEW YORK • PHILADELPHIA • VANCOUVER, WASH.

Progress in Peroxygens **BECCO**

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

FMC CHEMICALS INCLUDE: BECCO Peroxygen Chemicals • WESTVACO Phosphates, Barium and Magnesium Chemicals • WESTVACO Alkalis, Chlorinated Chemicals and Carbon Bisulfide • NIAGARA Insecticides, Fungicides and Industrial Sulphur • OHIO-APEX Plasticizers and Chemicals • FAIRFIELD Pesticide Compounds and Organic Chemicals

NBP BPA

Textile Industries

formerly "COTTON"

Vol. 121, No. 9
September, 1957

CONTENTS

Articles digested for quick reading on page 4

MAN-MADE FIBERS (a special 50-page section).....113-162

Here Are the Man-Made Fibers 114
How Mills Run Synthetics 119
Properties and Uses of Man-Made Fibers (chart) 129
Trade Names of Fibers and Yarns; Producers' Sales Offices (chart) 132
Where U. S. Fiber Producers' Plants Are Located 135
Today's Status of Textured Filament Yarns 136
What Makes a Fabric Sell? 141
Dyeing the Synthetic Fibers 144
Chemical Principles for Finishing Man-Made Fibers 152

Management

Industry's 1956 Accident Rate Up 151
STA Annual Meeting 167
ACMI Urges 15-Year Equipment Depreciation 169
Lubrication Is Management's Business, Part 2 170

General and Technical

Two Killed in Wet Process Plant Accident 158
T. I. Poster 5 (Tip for Piecing Laps) 163
T. I. Poster 6 (Chokes in Drawing Trumpets) 165
Dan River's 75th Year 179
Tables for Predicting Cotton Yarn Strength 183
Electronic Slub Catcher 99% Efficient 183
Warp Sizing, Article 17 185
Slashers—Old vs New 219
Which Cutter Roll for Nylon Tow? 219
Leveling System for Spinning Frames 221
Handy Top Roll Truck 221
Inexpensive "Clip" Board 223
Switch Stops Looms Properly 225
Try this Shop-Built Broom 225

Knitting

203 Salvage Auxiliary Yarn Change Levers
205 Spring Saves Time and Hose in F-F Mill
207 Simplify Stitch Adjustment on Komets
209 Single-Head F-F Sweater Machines Up Output
213 Quality Control Begins in the Knitting Room
217 Stop Trip Lever Plate Wear on Komets
223 Speeds Needle Butt Pulling
223 How to Find Weak Knitting Yarn
225 Cuts F-F Downtime

Departments

6 Shorts and Remnants
38 Personal Notes About Men You Know
97 News in Brief
103 An Executive Views the News in Textiles
111 Future Events
217 How Other Men Manage
231 New Equipment Parade
255 Helpful Booklets Free
268 What the Textile Mills Are Doing
273 Suppliers News

EDITORIAL AND EXECUTIVE OFFICES: 806 Peachtree St., N. E., Atlanta 8, Georgia

J. Frank Guest, *Managing Editor*
George H. Dockray, *Executive Editor*

Milton C. May, *Associate Editor*, P. O. Box 11015, Charlotte 9, N. C.
Stanley M. Suchecki, *Associate Editor*, P. O. Box 131, New Canaan, Conn.

Jesse W. Ellington, *Associate Editor*
Melba L. Rowan, *Assistant Editor*

J. A. Moody, *Production Manager*

John C. Cook.....*Vice-Pres. & Bus. Mgr.*
Walter M. Mitchell, Jr.....*Advertising Manager*

Business Representatives in U. S. A.

BOSTON—Arthur C. Shaw, *27 Southgate Rd., Wellesley 81, Mass. (Phone: Wellesley 5-3648).*
NEW YORK—William K. Hoffman, *58 Euclid Ave., Maplewood, N. J. (Phone: South Orange 2-2484).*
PHILADELPHIA—James R. Corgee, *27 E. Windermere Terrace, Lansdowne, Pa. (Madison 6-9145).*
CHICAGO—Richard F. Hanrahan, *333 N. Michigan Ave., Chicago 1, Ill. (Phone: Central 6-6964).*
CLEVELAND—A. E. C. Smith, *P. O. Box 3054, Cleveland 17, Ohio (Phone: Cherry 1-7352).*
PITTSBURGH-BUFFALO AREA—J. D. Parsons, *39 Atlantic Ave., Cohasset, Mass. (Phone: 4-0712).*
CHARLOTTE—W. Cliff Rutland, *Box 102, Gastonia, N. C. (Phone: University 7-7995).*
MIAMI—Ray Rickles, *814 Chamber of Commerce Bldg., Miami, Fla. (Franklin 9-1495).*
LOS ANGELES—L. B. Chappell, *8693 Wilshire Blvd., Beverly Hills, Calif. (Olympia 2-1490).*
EUROPE—Harry Becker, *National Provincial Bank Chambers, 15 Grafton St., Altrincham, England.*

TEXTILE INDUSTRIES is published monthly, with an extra issue in November, at 116 E. Crawford St., Dalton, Ga., by W. R. C. Smith Publishing Company, Dalton and Atlanta, Ga., U. S. A. Contents copyright 1957 by W. R. C. Smith Publishing Co. W. J. Rooke, chairman of the board; R. P. Smith, president. Executive and Editorial Offices: 806 Peachtree St., N. E., Atlanta 8, Ga. Subscription Rates: United States and Possessions, $2.00 for one year; Canada, South America, Central America, $2.00 per year; Foreign Countries, $5.00 per year. Entered as second-class matter at the post office, Dalton, Georgia, under the Act of March 3, 1879. Postmaster, send notices by Form 3579 to 806 Peachtree St., N. E., Atlanta 8, Ga.

THIS MONTH: Contents in Brief

A Special Section on Man-Made Fibers — 113-162

■ Last year man-made fibers represented 26 per cent of U. S. mill consumption of the major textile fibers. This month TI presents a special 50-page section on the man-made fibers—what they are, what they can do, and how the mills are spinning, weaving, dyeing, and finishing them.

Our special editorial consultant for this issue was J. B. Goldberg, whose wide knowledge and experience in the field of man-made fibers has earned him the title "Mr. Synthetics." Mr. Goldberg is a consultant to the textile and allied industries, and for a number of years was research director for J. P. Stevens & Co., Inc.

The issue contains a description, beginning on page 114, of each of the man-made fiber types produced commercially in the U. S. today—how they were developed, the manufacturing processes by which they are made, latest production figures, estimates of current and future plant capacity, and what they are used for.

To get the current story of how mills are processing the man-made fibers—alone and in blends—TI's editors visited plants in all the textile manufacturing areas of the country. A complete report of what they found is presented in 13 pages of text and pictures, covering mills using the cotton, woolen, and worsted systems, starting on page 119.

Bound into the section, starting on page 129, is a chart giving the properties of the principal man-made fibers; on the back of the chart is a glossary of trade names for the man-made fibers, and a list of the sales offices of their producers.

Other feature articles in the man-made fibers section include:

A discussion of stretch and bulk yarns, by Eldon Stowell, technical director for Brant Yarns, Inc., starting on page 136;

A description of the method used by Celanese Corp. of America to appraise the performance of new fibers and fabrics, starting on page 141;

An outline for dyeing all of the presently available man-made fibers, by G. T. Hug of the Du Pont Co., starting on page 144;

A discussion of the chemical principles involved in finishing the man-made fibers, by D. D. Gagliardi, of Gagliardi Research Corp., beginning on page 152.

Textile Mill Lubrication—Management's Responsibility — 170

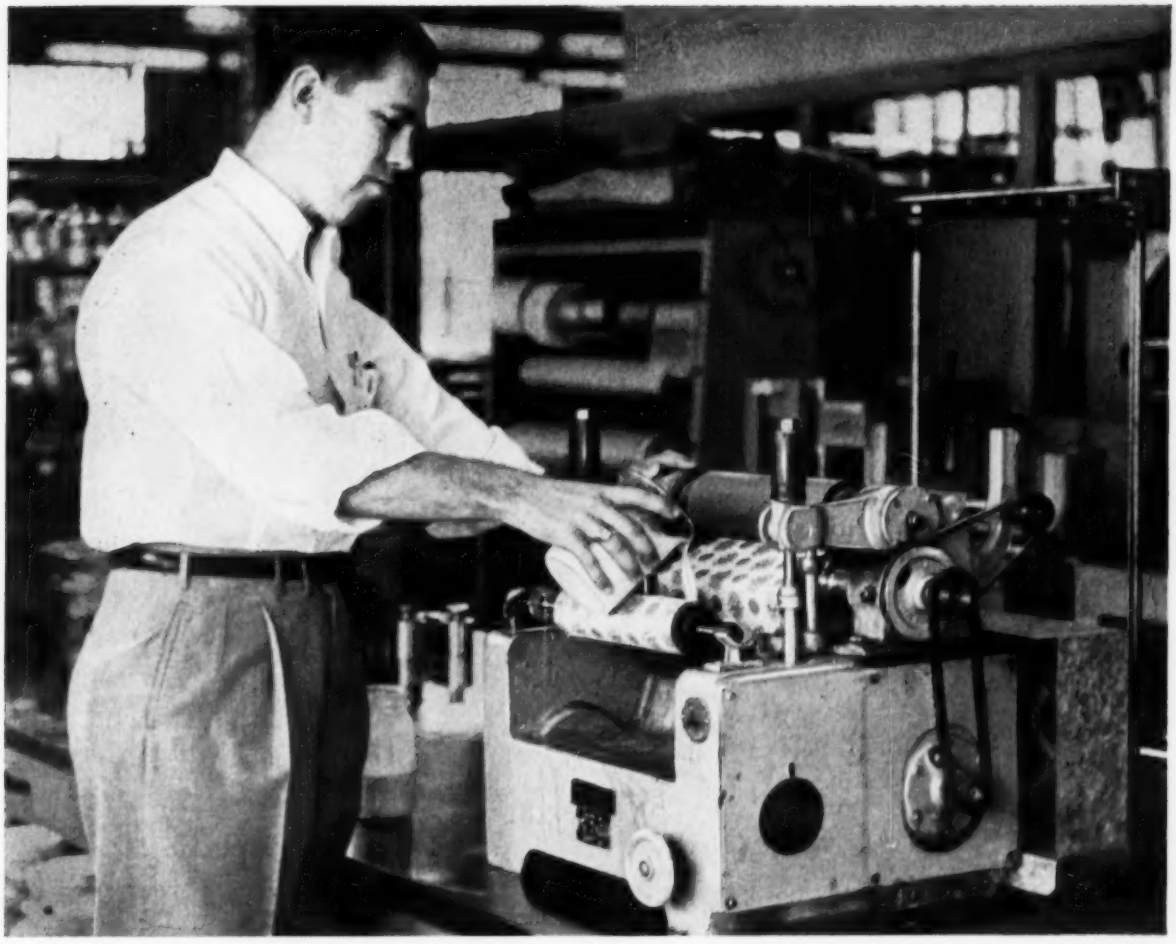
■ The second and final installment of an article which tells mill managers how to set up an effective lubrication program in the plant and the benefits to be derived from such a program. A general description of the lubricants available for textile mill equipment, summary of the important lubricant characteristics required for it, special lubricant requirements, and hints for lubricating personnel are presented in Part 2. Departmental supervisors and their assistants will also find this article helpful.

Warp Sizing — 185

■ In the seventeenth article of this series, Dr. Seydel continues his discussion of the slasher room and its equipment, which began in the June issue. This installment covers weighting of squeeze rolls, synthetic-rubber-covered squeeze rolls, the Griffin size box, the Shirley size box, and drying the sized warp.

Knitting Section — 201-213

■ TI's knitting mill readers will find four feature articles in this section: (1) How to salvage auxiliary yarn change lever operating lever extensions on Banner SCOP machines; (2) Simple spring installed on single-unit full-fashioned hosiery machines prevents seconds and saves time; (3) How to simplify stitch adjustment on Komets; and (4) Case history report on a new single-unit full-fashioned sweater knitting machine. Also, see the special section on man-made fibers (pp. 113-162), lubrication article (p. 170), "News in Brief" (p. 97), "How Other Men Manage" (p. 217), and "New Equipment Parade" (p. 231).



Want to add "plus" to your fabric quality?

You're probably already working toward improved washability, better wearability and greater wrinkle-resistance–the "plus" qualities in ever-increasing demand in today's market. Or maybe you're seeking to improve body, drape, strength or dimensional stability. You're well on your way to solving any of these problems–when you start with a latex by Goodyear.

There are four basic latices to choose from: CHEMIGUM (nitrile rubber), PLIOLITE (styrene/butadiene rubber), PLIOLITE (styrene/butadiene resin) and PLIOVIC (vinyl resin). They are available in a range of monomer ratios, solids contents, particle sizes and types of stabilization. What's more, they can be used alone, in various combinations with each other–or as modifiers of your present materials.

Result: You're sure to find just the Goodyear latex you want–to do the kind of job you want done – the way you want to do it – and on standard equipment.

Remember, too–Goodyear always backs its latices with all the technical help you need to make the most of them. Your nearest latex compounder is the man to see for the complete CHEMIGUM LATEX, PLIOLITE LATEX or PLIOVIC LATEX story. Or write for details and the latest *Tech Book Bulletins*, available at Goodyear, Chemical Division, Dept. I-9439, Akron 16, Ohio.

CHEMICAL
GOODYEAR
DIVISION

COATINGS
DEPARTMENT

Chemigum, Plioflex, Pliolite, Plio-Tuf, Pliovic–T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries

Booth

Originators of STRIP-O-MATIC*

CARD CLOTHING

SUPR-O-TAPE

THE FIRST AND ONLY SUCCESSFUL FABRIC TAPE FOR CONDENSERS

Two years of actual mill use testifies to these amazing facts:

- Longer Life
- Extra Strength
- Increase Production
- Improve Quality
- Surface Won't Crack
- No Oiling Needed
- Yarn Uniformity Improved
- No Stretch—Less Sag
- Keep Square Edges
- Retain Full Width
- No Breaking In
- Permit Wider Range of Counts
- Fewer Ends Down
- Easily Cleaned
- Endless or Continuous
- Belt Hooks Hold
- Not Affected by Emulsions

STRIP-O-MATIC CARD CLOTHING *IN TWO TYPES*

CONVENTIONAL CARD CLOTHING

QUALITY AND SERVICE FOR 65 YEARS

*Patented

BENJAMIN BOOTH COMPANY

ALLEGHENY & JANNEY STS., PHILA., PA.

Booth

Shorts and Remnants

By J. C. C.

► Not too long ago in the office of a big southern textile mill, we caught "Hail Columbia" for having changed the name of our good magazine from "Cotton" to TEXTILE INDUSTRIES. Why didn't we stick to "Cotton?" . . They have never run anything but cotton and never would. . . . Our name now sounds like all the rest, etc., etc.

On the next trip, the manager's desk was covered with bulletins and advertising of synthetics. A trip through the mill showed a sizeable synthetic production.

You never can tell. Next thing we know, somebody will be talking about that new wonder fiber cotton, a marvel of nature. In fact, somebody sent us an ad of a wonder fiber "Nottoc," and that's just plain old cotton spelled backwards—just as TI spelled backwards is IT.

► And whether you run cotton, wool, jute, hemp, flax, silk (remember?), or any of those substitutes such as nylon, rayon, Acrilan, Orlon, Fortisan, Dacron, Lurex, Fairtex, Coloray, Verel, IRC, Avisco, etc., or whatever you run, we believe you will find the treatment of man-made fibers in this issue enlightening, interesting, and helpful. A lot of the good advertisers have also spent money to talk about running synthetics. Don't be bashful. Step right up and ask them for more data, prices, etc., or just order a carload or two.

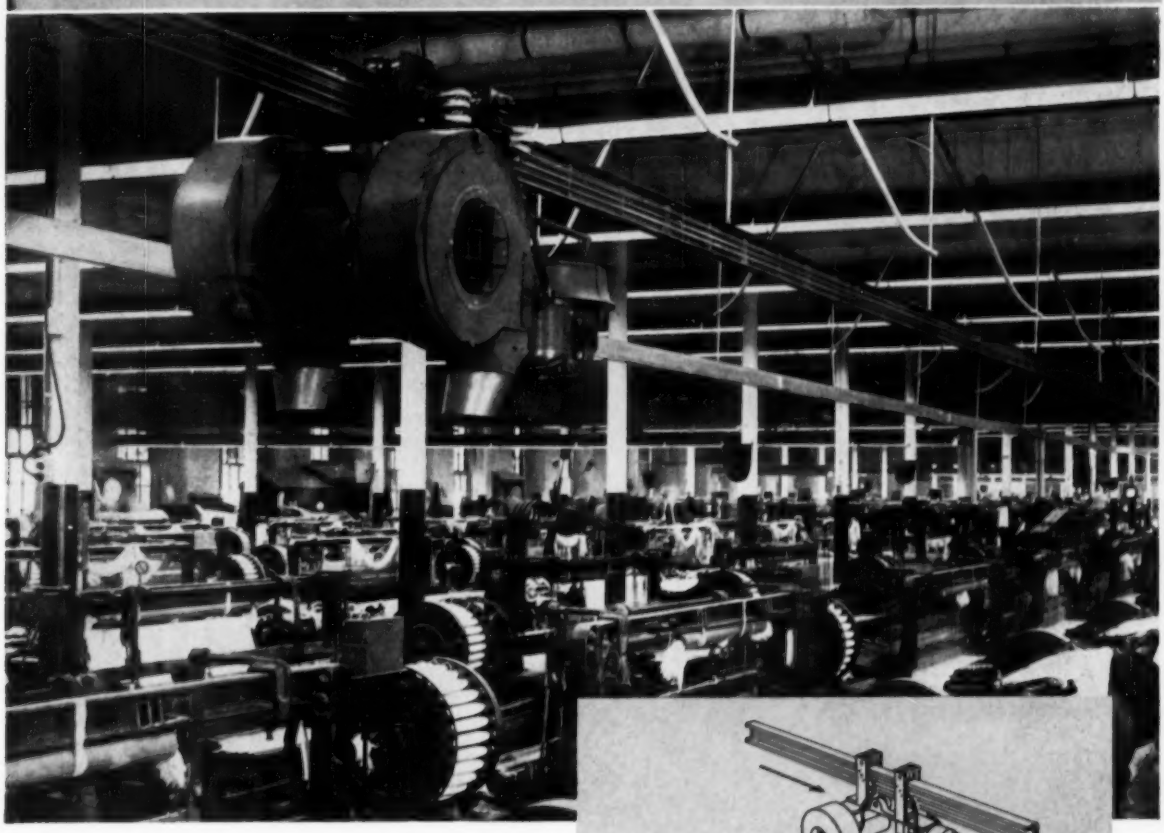
► Speaking of publication names, maybe folks do get mixed up. Recently, we wrote about a friend and good contributor who said he frequently got compliments on his articles in "Textile Something or Other" for whom he has never written a line. How mixed up can you get? One of our good contemporaries, "Textile Age," followed in our footsteps and put in a return card for advertising inquiries in July, but they said of it "A double inquiry card has been bound into this issue of 'Textile World' for your use. . . . "

The name of this here magazine is TEXTILE INDUSTRIES. Keep your eye on TI.

(Continued on page 14)

Amco Introduces its New

Heliclone Loom Cleaner



Provides automatic, continuous cleaning of looms and ceiling • Drastically cuts cleaning costs • Steps up production • Improves quality of fabric • Reduces fire hazard • Improves weave room appearance • Boosts employee morale • Can be incorporated with beam handling equipment.

Write for further information, or ask to have an Amco engineer call.

Swiftly whirling outlet nozzles, driven by the air stream, direct the air jets at an acute angle in overlapping, circular paths. The result is a rapid series of high-velocity bursts of air over loom and warp surfaces for complete cleaning action.

AMERICAN MOISTENING COMPANY *Air Conditioning Systems and Textile Mill Equipment*

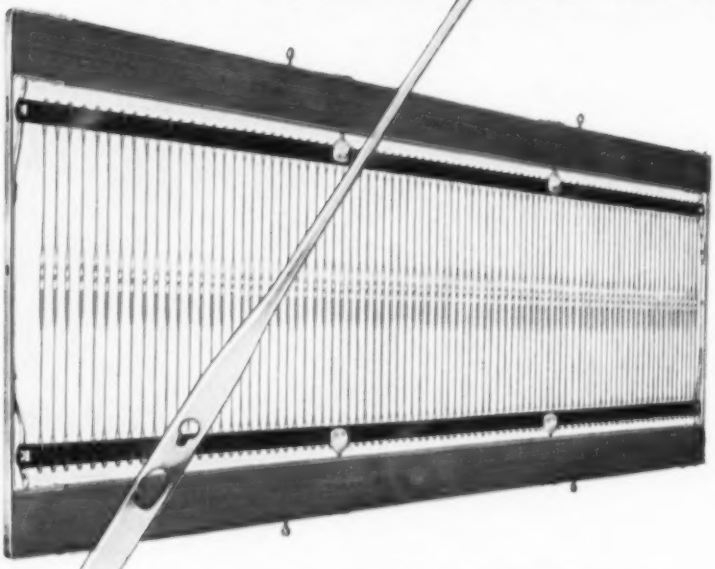
Executive Offices: Cleveland, N. C. Branches in Atlanta, Boston, Camden, Providence, Toronto

CHANGE to..... Stehedco
DRAWTEX HARNESS
FOR TOP WEAVING EFFICIENCY
.... Proven for Over 20 Years

TYPE C-2 END BRACE

RIGID ROD HOOK

REMOVABLE ROD HOOK



Every weaver wants 100% production and no seconds... Stehedco Drawtex Harness brings you closest to that goal.

Stehedco Drawtex Heddles and Frames have revolutionized the textile industry with their efficient, trouble-free performance, greatly increased production and higher quality goods.

Stehedco Drawtex Heddles are made of the finest quality spring steel, highly polished to handle your most delicate yarns. The exclusive spring effect guarantees quick and easy drawing in by hand or machine.

One heddle size can be used for a much wider range of yarn sizes and constructions, and every heddle is a repair heddle which can be added or removed at any position on the frame.

Stehedco Drawtex Frames are made of select fir lumber, straight and knot-free. The new type C-2 end brace rigidly clamps the heddle rods so that there is no wear on either the brace or the rods. The rods may be removed by slight pressure of a screwdriver, and as easily replaced.

Only Steel Heddle offers you both the rigid rod hook and removable rod hook, giving you a choice to suit your particular needs. They eliminate all warp streaks frequently caused by the bunching of heddles at conventional type rod supports.

Ask our qualified Field Engineers for samples and additional information.

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
Southern

F-5716

OTHER PLANTS AND OFFICES: GRANBY, QUEBEC, CANADA • LAWRENCE, MASS. • GREENSBORO, N.C. ATLANTA, GA. • TEXTILE SUPPLY CO., DALLAS, TEXAS • ALBERT R. BREEN, CHICAGO, ILL.

MORE THAN 2½ MILLION SPINDLES NOW EQUIPPED WITH ROBERTS HIGH DRAFT

ROBERTS SPINNING NEWS

PUBLISHED BY ROBERTS COMPANY SANFORD, NORTH CAROLINA

VOL. 12 SANFORD, NORTH CAROLINA NO. 3

ALL THREE LINES IN TOP ROLL SUSPENSION USE BALL BEARINGS

The Roberts Ball Bearing Top Roll Suspension System uses double-row ball bearings in front, middle and back lines and incorporates many other important design advantages.

Cots have ½" hole diameter, revolve together making lap removal simpler, and are buffed on standard equipment, without attachments. Full length revolving clearers are used.

Front and back rolls are interchangeable making sequence buffing possible.

The double-row bearing raceways are ground directly into ½" shafts. Bearings are grease-packed for life and a 2-piece labyrinth seal protects them from lint entrance and from roll picker damage.

The system has controlled self-alignment. Conventional deadweighting or new spring weighting is optional.

An alternate arrangement also available employs a ball bearing top roll and special suspension on the front line only with Roberts Cap Bars and solid top rolls on middle and back top rolls.

Roberts also continues to offer its No-Oil Cap Bar and Saddle system for all three lines, now installed in more than 2½ million spindles.

SPINNING MODERNIZATION AT LOWEST COST

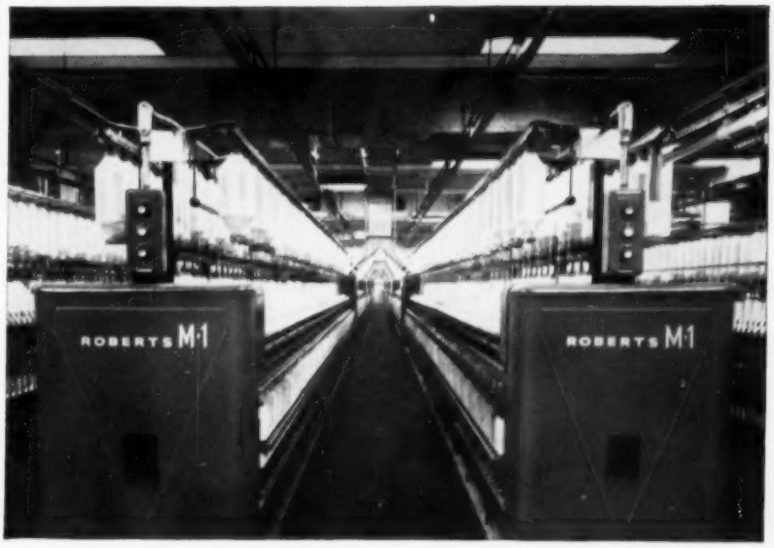
The cost-cutting, performance, and quality features of Roberts Spinning can be obtained through changeovers to the mills' existing spinning frames, or through rebuilt frames supplied by Roberts, as well as Roberts M-1 Spinning Frames.

Changeovers can include drafting systems, spindles, creels, suction cleaning, tape drive, gearing, or any combination of these to provide the maximum return for minimum expenditures.

Roberts Model 55-R Rebuilt Frames provide complete new spinning performance making use only of non-functional support members of older frames, thus affecting a substantial saving.

Roberts M-1 Spinning Frames are excitingly new from the ground up, with all-ball-bearing features. They are available in 39-inch, 36-inch, and the space-saving 25-inch widths.

ROBERTS SPINNING FRAMES SET TODAY'S STANDARD FOR PRODUCTION, YARN QUALITY AND INVESTMENT



Roberts Spinning is setting today's standard for comparison in high drafts, package sizes, roving bobbin sizes, front roll speeds, ends up, yarn break factor – and at the lowest investment cost per spindle.

The Roberts M-1 Spinning Frame is simple and straightforward, free from radical innovations or gadgets. Its design has already been tried and proven in many successful applications. It embodies all the ball bearing features most wanted in a modern frame, giving highest production and lowest maintenance.

Roberts Double-Apron Drafting produces highest break factors, best yarn evenness and lowest ends down in a range of drafts from 10 to 60, for yarn numbers from 2's to 100's, in cotton, synthetics with staples up to 3 inches long, or blends.

Large package flexibility is an important feature. One basic model of the Roberts M-1 Spinning Frame is adapted to run warp bobbins with lengths from 10 inches to 12 inches as well as filling quills. Standard gauges from 3 inches to 4½ inches can be arranged to employ the maximum desirable ring size suitable for the yarn number and twist constant.

The frame chassis is of rugged construction. The working motions use ball bearings for every turning and oscillating motion where practical. The all-ball-bearing head design is outstanding in its simplicity and flexibility.

All gears in the head are hardened and have one pitch, one width, one bore and one keyway, making them completely interchangeable. Greased-for-life bearings are used in the head and all plain bearings and studs are eliminated. Draft and lay constants are adjusted simply over the complete range of yarn numbers.

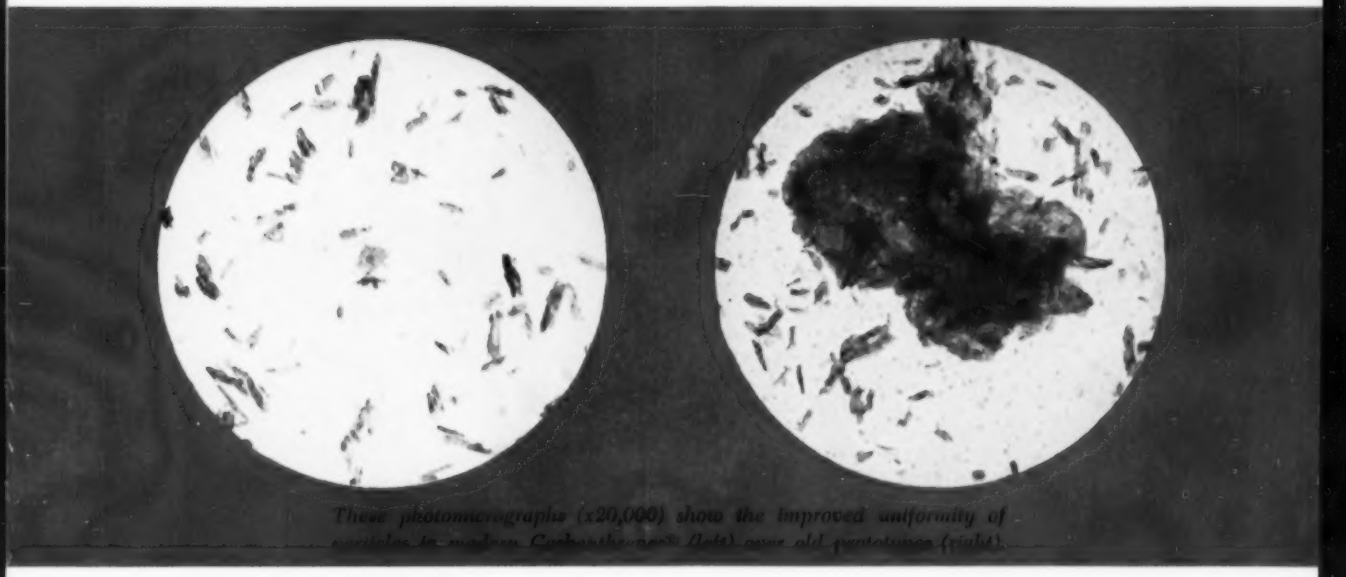
Standard equipment includes Roberts Ball Bearing Spindles, Roberts built-in UnitVac Suction Cleaning. Roberts AeroCreels are available in every desired package size, single or double.

under the

Development of pigment-impregnation application challenged the dyestuff industry to eliminate troublesome agglomeration and improve the physical uniformity of vat dyes.

National Aniline met the challenge. New conditioning techniques were developed and improved vat dyes of unsurpassed physical properties were quietly introduced into the Carbanthrene® range, one at a time, in step with these manufacturing developments.

Uniformity you can see . . . microscope and in the end result!



These photomicrographs (x20,000) show the improved uniformity of particles in modern Carbanthrene® dyes (left) over old-type mixtures (right).

The excellent dispersibility of these uniform, fine-particle dyes produces thorough, even penetration without depositing residues on the outside of packages and beams. Consistently uniform, level shades are obtained in padding. Dye yields are frequently increased. And because the dye is utilized more efficiently, results are always precisely reproducible.

For all types of vat dyeing, the ultra-refined characteristics of the Carbanthrenes® are unsurpassed. We will gladly furnish samples to enable you to judge their outstanding properties in your processing.

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Akron Atlanta Boston Charlotte Chattanooga Chicago Columbus, Ga. Greensboro Los Angeles New Orleans Philadelphia Portland, Ore. Providence Richmond San Francisco Toronto

Allied Chemical

Allis-Chalmers announces . . .

NEW totally-enclosed textile MOTOR

This modern, deep-rib frame has become a famous sign of high cooling efficiency in Allis-Chalmers TEFC motors. NOW — its tough dependability has been combined with lint-free features to make this motor just right for textile applications.

MORE protection against lint

Here are only a few of the TEFC motor features:

Ribbed Frame

Lint won't stick on this frame. Free-flowing air continually blows ribs clean.

Fan Bowl

Has no grid to collect fly and lint.

Optional Design

Permits placement of fan at shaft or front end of motor, and choice of conduit box or cable and fitting.

Find out more from your A-C sales office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletin 51B6055C.

A-C ALLIS-CHALMERS

A-5289

ALLIS-CHALMERS

Sh-h-h-h-h-h-h-h

JACOBS

TIGER PAW

VIBRATION PADS

- Fiberglas & Vinyl — the Modern Way
- Reduces Vibration over 90%
- Vacuum Suction Cups Really Hold
- Not Affected by Oils, Greases, or Floor Finishes
- Made for any Size or Weight of Machine
- More Economical than any other type Vibration Pads
- In Stock — Prompt Delivery!
- No messy adhesives are necessary — just put proper size pads under machine and start up — if machine needs re-location, just pick up pads and re-use.

SAMPLES ON REQUEST

THE BULLARD CLARK COMPANY

SOUTHERN DIVISION
Charlotte, N. C.

JACOBS

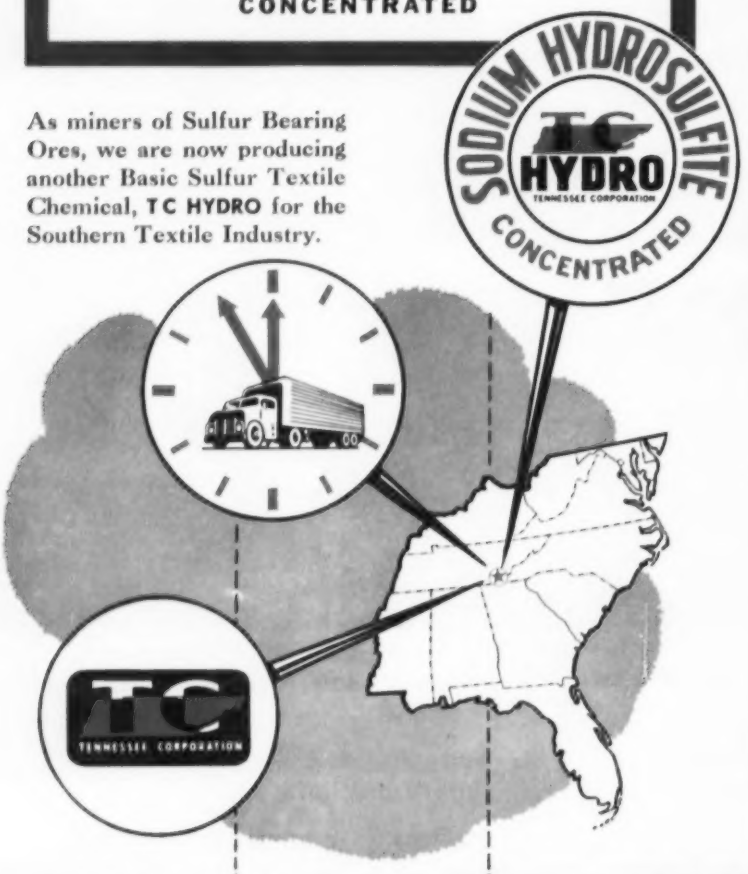
NORTHERN DIVISION
Danielson, Conn.

TC HYDRO

SODIUM HYDROSULFITE

CONCENTRATED

As miners of Sulfur Bearing Ores, we are now producing another Basic Sulfur Textile Chemical, **TC HYDRO** for the Southern Textile Industry.



HIGHEST QUALITY	FAST DELIVERY SERVICE	DEPENDABLE SUPPLY
T C HYDRO is a dry, white, free flowing, crystalline powder of uniform size and structure. It is dust-free, assuring highest stability and uniformity.	Our location in the heart of the Southern textile industry, permits us to render over-night truckload service to most Southern textile plants. Small lot shipments are available from centrally located warehouses.	Long a trusted source of Sulfuric Acid, Sulfur Dioxide, Organic Sulfonates and other textile chemicals, we are utilizing our know-how and basic position in Sulfur Chemistry to produce another quality product for the textile industry.

Phone, wire or write for literature and test samples if desired.

TENNESSEE TC CORPORATION

617-629 Grant Building, Atlanta, Ga.

Shorts and Remnants

(Continued from page 6)

► If you missed those free posters in our July and August issues why don't you write for reprints for your

Posters 1 and 3 are for use in spinning rooms; 2 and 4 for weave rooms.

bulletin board? No charge. They are free. Among the first to request the July posters were: **Earle R. Stall, Jr.,** Mgr., Cone Mills Corp., American Spinning Plant, Greenville, S. C.; Purchasing Agent, Sellers Mfg. Co., Saxapahaw, N. C.; **Ed M. Edwin,** Pres., EME Mills, New York; **J. A. Bradshaw, Jr.,** Supt., Fulton Bag & Cotton Mills, Atlanta, Ga.; **Lem Coley,** Russell Mfg. Co., Alexander City, Ala.; **A. C. Link,** Mgr., U. S. Rubber Co., Hogansville, Ga.; **A. O. Kaplan,** V. P., Hakco Corp., Hammonton, N. J.; **J. L. Thompson,** Controller, Cramerton (N. C.) Mills.

Incidentally, how is *your* bulletin board? Good friend of Ole S&R says only thing anybody notices on bulletin boards is vacation announcements and boards are too "cluttered up."

On the posters, **N. Berman,** Fainer Knitting Mills Ltd., Montreal, P. Q., Canada, writes "Why only cover spinning, weaving and wet finishing?" I think we knitters are still considered. . . . How about throwing in a few posters for the forgotten industry? . ." Hey, Mr. Berman, "Knitter Hints" was our original poster idea. Planned for knitting mills, these posters were started in 1941. They have included such subjects as "Right and Wrong Way To Pull Yarn from Cone," "Don't Unravel a Press-Off," "Keep Goods Off The Floor," "Be Sure

(Continued on page 18)

what have

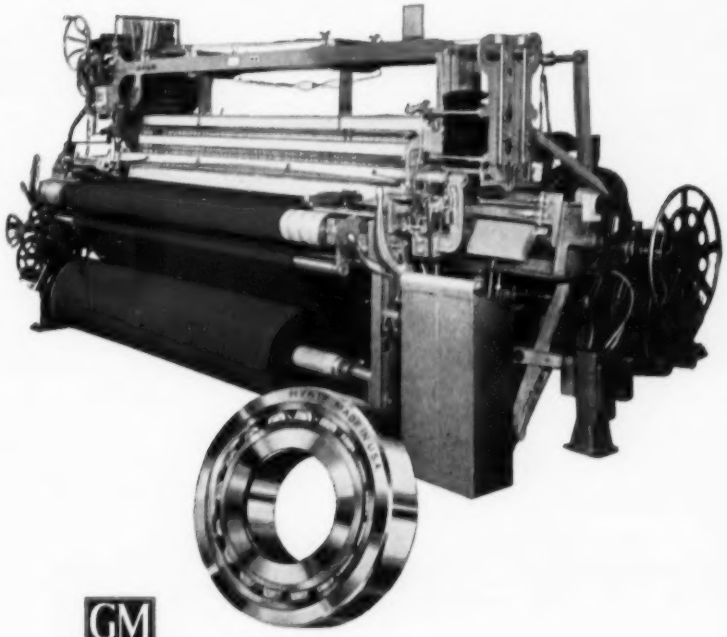
HYATTS

to do with all this?

Smooth-running bearings help weave *winning textiles!*

At Hialeah . . . and wherever smart people gather . . . fine fabrics distinguish the favored fashions. And it's a safe bet that HYATT Hy-Roll Bearings helped guard the quality of most of these winning textiles . . . by maintaining critical settings with unfailing accuracy!

Whatever type of textiles you produce, it's *good business* to standardize on new HYATT Hy-Rolls. They're built to run *smoother* and *longer* than any roller bearings you have ever used. HYATTS can save you up to 90% on lubrication . . . up to 40% on power . . . prevent costly "seconds" caused by inaccurate settings and oil splatters. *Be sure to specify HYATT Hy-Roll Bearings on all your new or modernized machines . . . it pays!* Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.



GM GENERAL MOTORS

HYATT HY-ROLL BEARINGS FOR TEXTILE INDUSTRY

PROFIT SQUEEZE EASED

TOP MANAGEMENT:

Uster's Continuous Quality Control provides the essential safeguard against a tighter profit squeeze in today's intensely competitive market.

This is not conjecture. It is an economic fact of life.

Textile executives daily are making decisions more important than ever before. Marketing and policy decisions made today can allow no room for costly errors.

More and more textile executives are freeing their minds from needless worry about the quality of the finished products produced in their plants with Uster testing equipment.

These are the mills that are eliminating inefficiency. These are the mills whose department heads have been made efficiency experts by C. Q. C. . . . the mills that are meeting competition with quality at a cost ratio compatible with a reasonable profit.

Continuous Quality Control raises quality standards at a time when quality is demanded . . . avoids costly delays, maintains modern statistical control over the entire mill operation.

Uster testing equipment in every department in every plant substantially reduces production costs at the same time it increases production.

Last year alone 40% more textile mills installed Uster's Continuous Quality Control to safeguard their future in the textile industry.

PRODUCTION AND SALES:

From picker lap to shipping department, Continuous Quality Control becomes increasingly necessary as the profit squeeze tightens.

Defects spotted and eliminated in the picker lap cost far less than the same defect undetected until roving.

The pinpointing of trouble as it happens, **where** as well as **when**, saves down time and maintenance costs. Production is increased proportionately—higher quality production at lower production costs.

No wonder the healthy organizations in today's increasingly difficult situation are finding the solution in Uster's Continuous Quality Control.

Uster testing machinery makes every department head an efficiency expert . . . a man completely in control of the quality of his department's production. Continuous Quality Control has made it possible for a number of mills to eliminate from one to three processes through drawing and roving while maintaining quality standards.

The salesman who can offer merchandise produced under Continuous Quality Control can **guarantee** his product to meet yarn specifications, and production will back up his guarantee easily.

Uster's C. Q. C. is the textile industry's answer to the profit squeeze.

CONTINUOUS QUALITY CONTROL IN MANUFACTURING

WITH C.Q.C.

VARIMETER

Indicates irregularities encountered in inch-by-inch measurements of the lap. Tests lap right on the picker without disturbing production.

EVENNESS TESTER

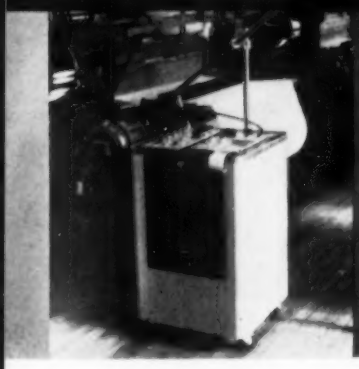
Replaces guess work with precise scientific methods for determining and controlling quality, improving manufacturing processes.

SPECTROGRAPH

Automatically analyzes all variations — short to long term. Accurately indicates process causing unevenness from yarn tests alone.

STRENGTH TESTER

Registers individual values of breaking strength and elongation, sum of breaking strength and elongation, and frequency distribution of breaking strength.



TENSION RECORDOGRAPH

Guarantees correct tension on section beams, shows up heavy travelers and grooved rings. Provides extremely accurate adjustment of winder tension.

HI-LO IMPERFECTION COUNTER

At any instant shows high and low count, weak spots in sample, excessive peaks, heavy spots, nep count.

SALES OFFICES:

U. S. Sales Offices: Atlanta, Georgia; Needham Heights, Massachusetts

Canadian Sales Offices: Hugh Williams & Company, 27 Wellington St., East Toronto 1, Ontario

USTER CORPORATION
CHARLOTTE
NORTH CAROLINA

USTER

Shorts and Remnants

(Continued from page 14)

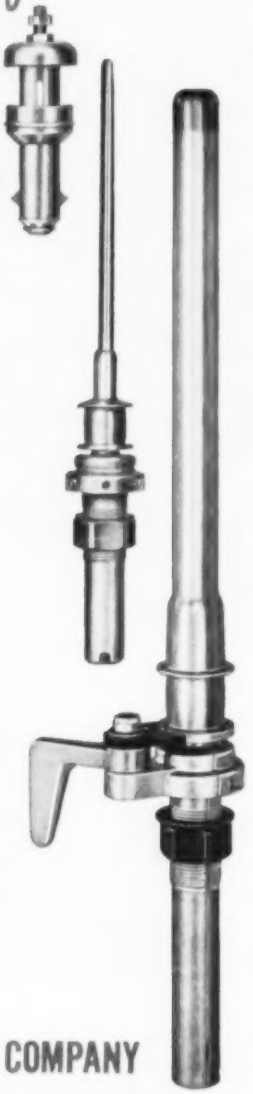
What Caused Defect Before Adjusting Machine," "Don't Carry Too Much Work, You'll Drop It," "Prevention of Pull Threads," "Don't Sit on Hose," etc., etc. Forty-six such posters have been run, including one on how "Mills Use Knitter Hints on Bulletin Boards." More of these hints are planned.

► **Jack B. Morrow,** Treas., Pee Dee Hosiery Mill, Mt. Gilead, N. C., writes for more data on a stainless needle oil ad and for information on a lubricant with the name "Humdinger." Now TI is a humdinger of a magazine and several of our lubricant friends say they have some oils that are humdingers, but they never called them that. Anyone want to help reader Morrow?

Complementing each other

HARTFORD

- Autolatching Bobbin Hangers for easier creeling
- Ball Bearing Filling Spindles: Top Drive & Acorn Drive
- Ball Bearing Warp Spindles — for Paper Tube or Wood Bobbin



Pre-lubricated ball bearings . . .
5 years, no lubrication
Spindles engineered for special applications

HARTFORD MACHINE SCREW COMPANY

DIV. OF STANDARD SCREW CO. • P.O. BOX 1776 • GREENVILLE, S.C.

And Austin Knitting Mills, Inc., Albemarle, N. C., has a humdinger of a sweater combination below called "coffee over cream." In case you're

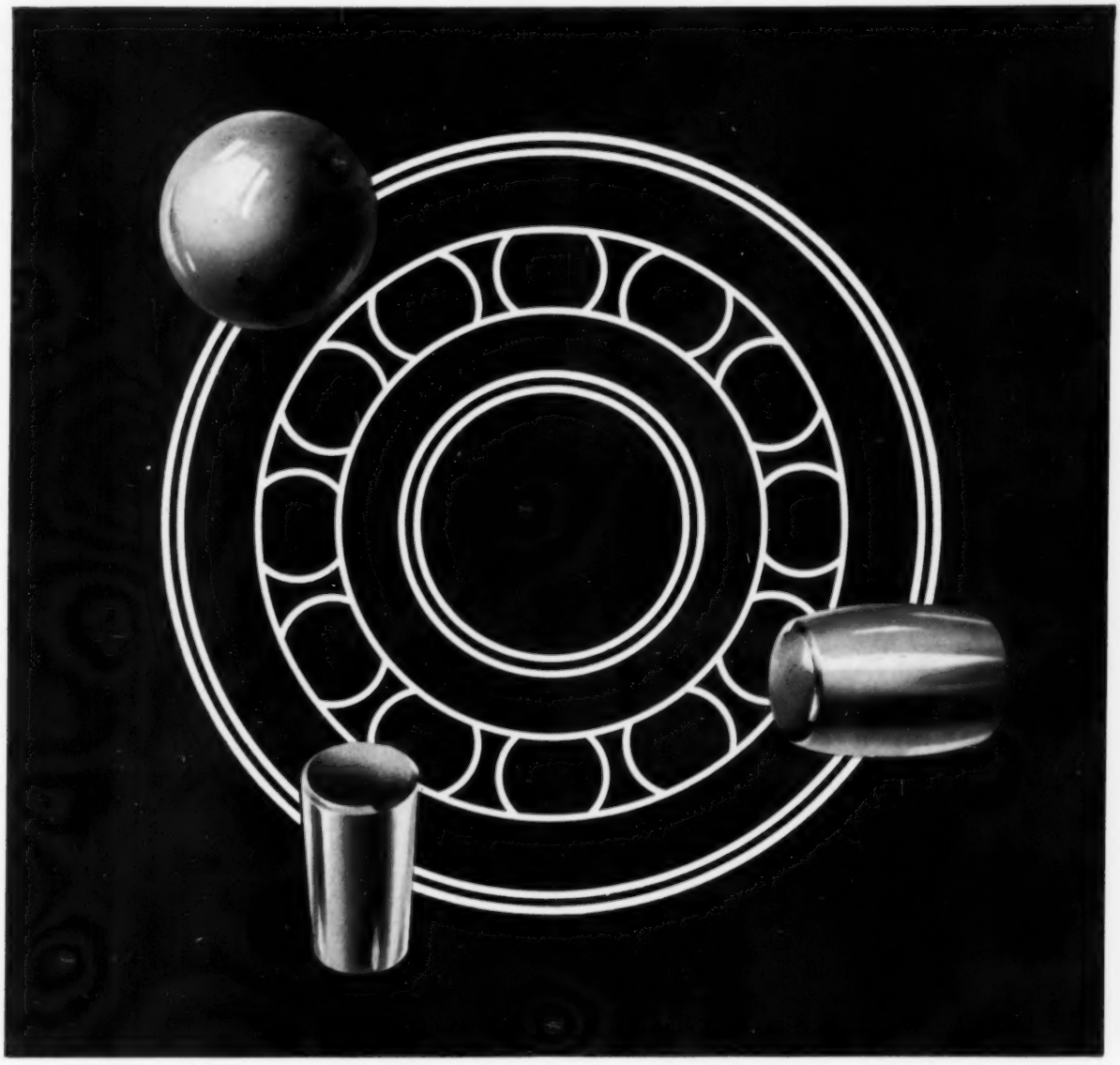
interested, it's a coffee colored cardigan over a cream slipover.

► Maybe our poet friend, **Watson J. Wood** of Knitters Ltd., Lindsey, Ontario, Canada, is right when he writes that an executive friend with whom he was working on manufacturing problems called his attention to the apparel in such a picture as above in a previous TI and said "Look at that picture; when they are made right, are they not beautiful?" To which our poet says "Shucks, man, sure she's made all right. On her a rag would look just as swell."

► **Ralph Marra** of Heberlein (Helanca) Patent Corp., New York, writes for extras on "How We Dye Stretch Yarns" (Aug. '56) and "How Garden State Handles Helanca SW" (July '57). Furnished gladly. We hope that he does as well by reader **Cecil M. Grubbe,** Laurinburg, N. C., who writes for maker of a high speed motor mentioned in "High Production Stretch Yarns" (May '57). We referred him to Heberlein, and wrote also that the Tempo TSR spindle (a self-contained motor) comes from Nurnberg, Germany (name on request).

► **Eugenio Llana,** Mfrs. Agt., Havana, Cuba, wants the name of the maker of an automatic shuttleless ribbon machine (May '57), and that is Jakob Muller, Frick (AG) Switzerland; **J. M. Currie,** Mgr., Currie Mills, High Falls, N. C., wants more information on ads on Cobble Bros. (Chattanooga) bedspread tufter, and on Fulton Bag (Atlanta) tufting supplies; **A. W. Herring,** Supt., Bemis Bro. Bag Co., Tal-

(Continued on page 22)



cut bearing maintenance . . . with one lubricant

Nebula EP – another first for Esso Research – is a multi-purpose grease that *out-performs* all other multi-purpose greases. And many specialized greases as well!

Nebula EP works exceptionally well in ball, tapered roller and roller bearings – of *all sizes* from rolling mills to precision instruments.

Nebula EP stands up under extreme heat. It retains its lubricating qualities at high temperatures at which many special heat-resistant greases would have broken down.

And Nebula EP has exceptional water-resistant and rust-preventive properties – an important consideration where water is a factor. What's more, Nebula EP is formulated with a true soap which gives it extra anti-wear and load-carrying characteristics – for an extra margin of protection. High oxidation stability gives Nebula EP longer life in storage and in use.

Nebula EP can be applied by *any* of the conventional methods. Get the whole story about this fine product . . . from your nearest Esso Standard Oil Company Division Office: Boston; Pelham, N. Y.; Elizabeth, N. J.; Bala-Cynwyd, Pa.; Baltimore; Richmond; Charlotte; Columbia, S. C.; Memphis; New Orleans.

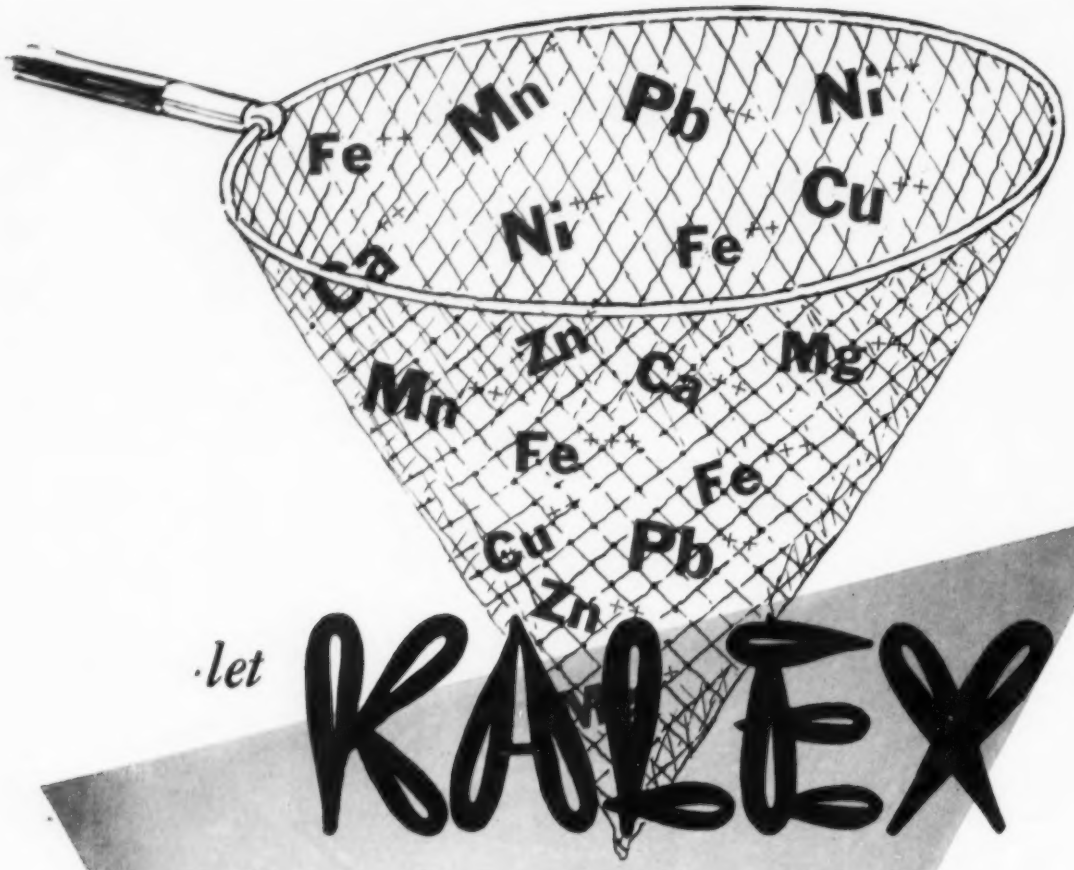
FOR BETTER RESULTS

NEBULA EP

Esso

PETROLEUM PRODUCTS

NEBULA EP—Reg. U. S. Pat. Off.



let KALEX

clean up your caustics

Have you discovered the advantages of using Kalex compounds?

In binding and deionizing heavy metal and alkali earth ions in caustic solutions, these water-soluble organic ion exchangers exhibit remarkable chemical stability at *all* temperatures. In fact, the effective sequestering properties of Kalex compounds permit their use in a variety of textile operations — kier boiling, bleaching, mercerizing, dyeing sulfur colors and wherever traces of iron, zinc, copper, manganese, nickel, lead, magnesium and calcium are harmful.

KALEX E and KALEX IR are especially effective for complexing iron in caustic solutions; however, they also do an excellent job of chelating calcium, magnesium, copper, nickel and cobalt. Get in touch with us today and let us show *you* how KALEX products can improve your processes.

the Hart Products Corporation

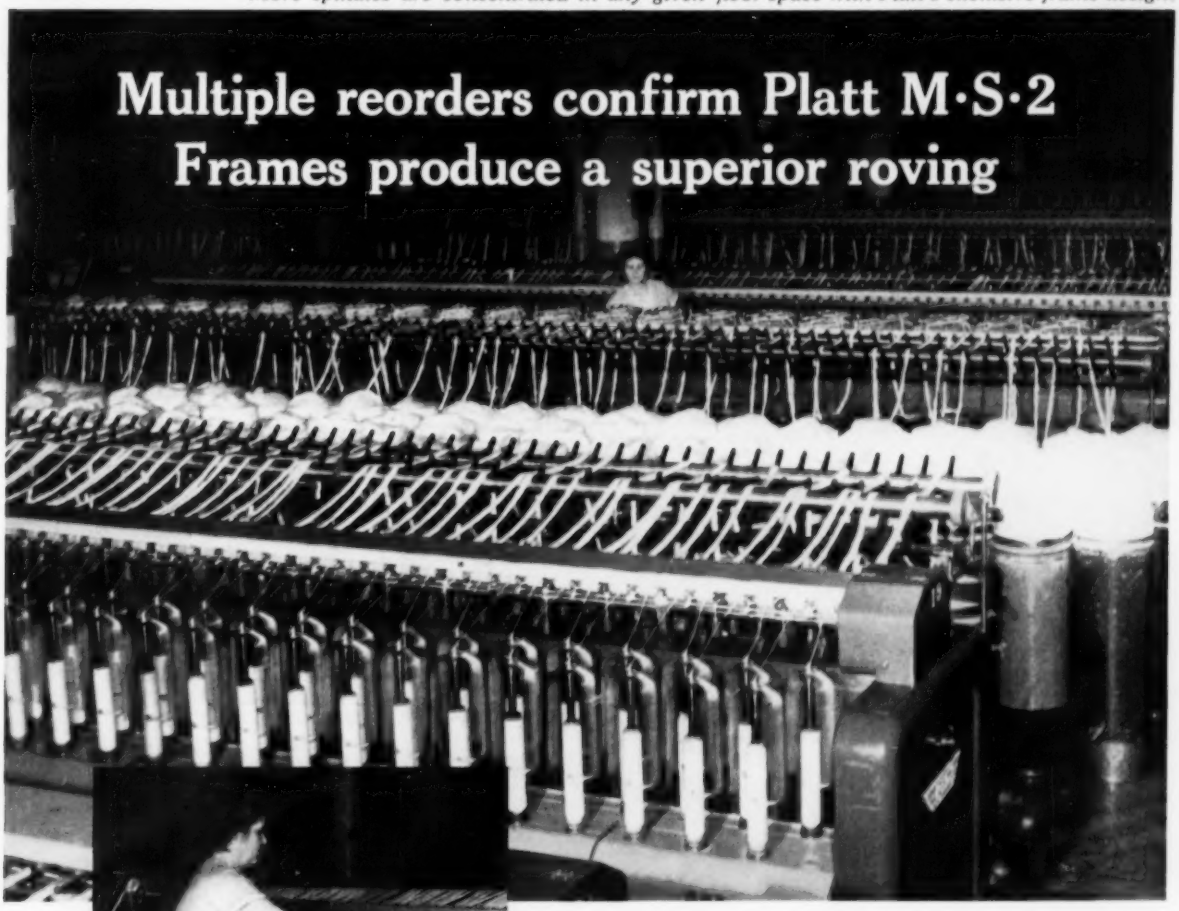
1440 BROADWAY, NEW YORK 18, N. Y.

Works and Laboratories, Jersey City, N. J.

Hart Products Company of Canada, Ltd., Guelph, Ontario

More spindles are concentrated in any given floor space with Platt's exclusive frame design.

Multiple reorders confirm Platt M·S·2 Frames produce a superior roving



EXCLUSIVE SAFETY FEATURE: Low frames are easy to operate and cannot be inadvertently started with any guard open.

PHOTO COURTESY OF AMERICAN THREAD COMPANY

The fourth installation in three years expresses the high regard this major American mill has for Platt Roving Frames. These streamlined frames produce an even, non-stretched roving of superior quality. Vibration and sound have been cut to a minimum. This smoother operation increases the frame's life. The more even roving means fewer ends down in spinning. Before purchasing any new frames we invite you to write for information on these efficient frames manufactured by the world's largest maker of textile machinery.

ATKINSON, HASERICK & CO., INC.
ENGINEERS & AGENTS FOR THE
WORLD'S LEADING TEXTILE MACHINERY
FRAMINGHAM, MASS. · CHARLOTTE 2, N. C.

PLATT BROS. (SALES) LTD.
OLDHAM, ENGLAND
MARKETING THE TEXTILE MACHINERY MADE IN THE WORKS OF
PLATT BROTHERS & CO. LTD. DOBSON & BARLOW LTD.
HOWARD & BULLOUGH LTD.

ELECTRICITY...

Electricity is defined as one of the fundamental quantities in nature, but NOBODY knows what it is.

One thing for sure, though . . . it's the lifeblood of your mill. Kind of like a woman—impossible to understand but *absolutely essential.*

That's why it's so important to select the *best* electrical contractor for your mill . . . and this means J. M. CLAYTON CO. You'll hear the name mentioned wherever electrical contracting is being discussed.

SERVING THE TEXTILE FIELD FOR 51 YEARS

J. M. CLAYTON CO.

CONTRACTING ELECTRICAL ENGINEERS

ATLANTA, GEORGIA

Shorts and Remnants

(Continued from page 18)

ladega, Ala., writes for more data on James Hunter (North Adams, Mass.) moisture control for slashers (July '57).

► Another tufted inquiry comes from **R. B. Kalbach,** Pres., The Wool "O" Co., Phila., who wants to know the maker of the hand stitching machine illustrated on p. 82, June '57; **J. J. Such,** Research Mgr., Kendall Mills, Walpole, Mass., wants more data on Cosa Corp. (N. Y.) Saladin flock beamer ad; and **J. O. Ortz,** Atlantic Industries, Mayazuez, Puerto Rico, wants more on Benjamin Booth (Phila.) card clothing ad.

► **Harold W. Rose,** Pres. of good advertiser Alliance Chemical Corp., Newark, N. J., wants to know why readers write us for further data on ads instead of direct to the supplier; and we don't know, but we like it.

Certainly Westinghouse and Micarta are well known, but a shuttle manufacturer in Germany sends us an inquiry with response to a TI ad, asking if they can make Micarta shuttles in Germany. American Cyanamid is pretty well known here and there, but a big mill organization in England sends us a sealed letter to deliver to them in response to an AC ad in our pages. That's the gospel truth. TI gets around.

► And **Austin P. Dunn,** General Electric Co., Utica, N. Y., wants equipment for spiral covering of wire, and that sounds like Fidelity Machine Co. (Phila.). **Murray L. Rose,** owner, Approved Flameproofing Co., Miami, Fla., wants more on Stowe-Woodward rolls and Morton Machine (Columbus, Ga.) tanks for flameproofing. Should be a hot tip.

After we figure out all the translation from F.R.A.C.I. Rosario, Santa Fe, Argentina, we find it is for machinery for garment making—sports clothes; and we got enough to do right here in our own backyard on yarn and cloth.

► Du Pont and some of the nylon boys, plus some good hosiery mills and maybe a few knitting machinery folks, seem to be worried about the lack of interest in female legs. Seems as if magazines, Hollywood, and other factors are plugging for interest

(Continued on page 26)

PERFORMANCE
records unsurpassed
. . . backed by millions of
spindles equipped.

NEWEST
and latest developments
are standard equipment
with Pneumafil.

ECONOMICAL
to operate . . . virtually no
maintenance costs—
a rugged piece of machinery.

UNLIMITED
types and arrangements of
Pneumafil systems . . . engineered
for any fiber or mill condition.

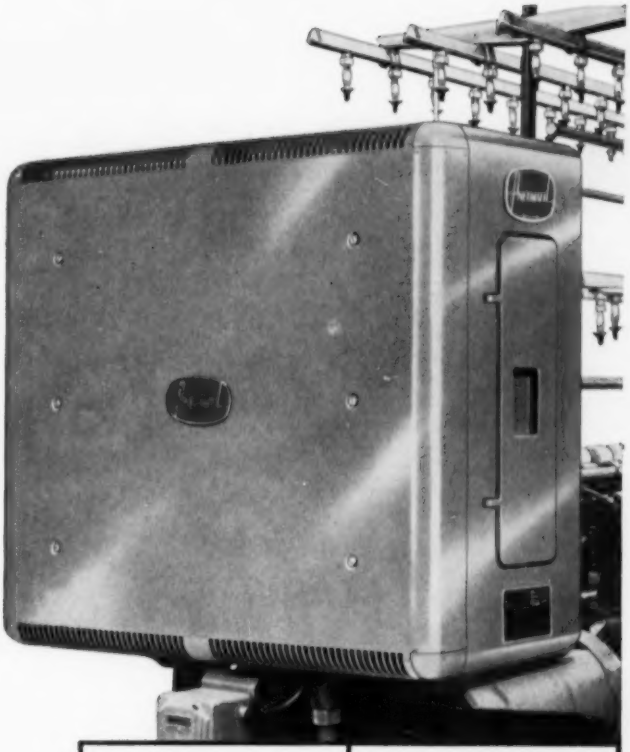
MILL MEN'S
practical ideas and valuable
suggestions are incorporated in
all Pneumafil equipment.

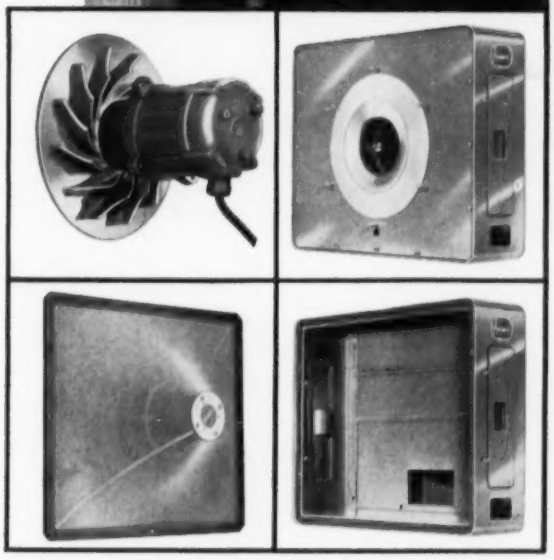
ADVANCED STYLING
and construction blends
in with today's modern
spinning processes.

FEWER ENDS DOWN—
Pneumafil's greater air quantity
keeps frames cleaner
and free of harmful waste.

IMPROVED YARN QUALITY—
Pneumafil's special "air flow"
pattern catches lint before
it becomes slubs.

LOWER SPINNING COST—
Pneumafil's positive end pick-up and
superb cleaning means spinners can
operate more sides than ever before!





PNEUMAFIL CORPORATION
CHARLOTTE 8, NORTH CAROLINA
Atlanta, Georgia — Needham Heights, Mass.

PNEUMAFIL®

Pat. & Pats. Pend.—© 1957 Pneumafil Corp.

SOLVAY Activated Hydrogen Peroxide Process*

Sets New, Higher Standards and Lower Costs for Cotton Bleaching

NEW! Lower Cost
NEW! Greater Purity
NEW! Higher Brightness
NEW! Longer Brightness Retention
NEW! Reduced Ash and Metals Content
NEW! Less Silica
NEW! Better Absorbency
NEW! Improved Dyeability
NEW! Hard Water Tolerance

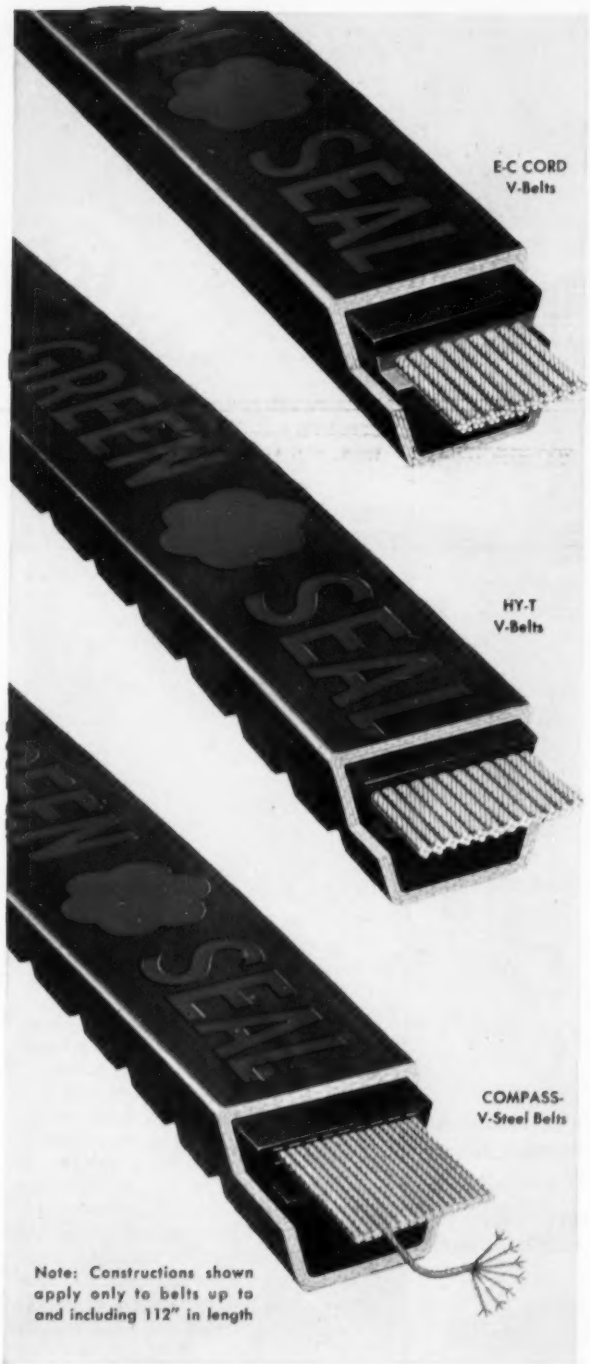
*Patent has been applied for on the SOLVAY Activated Hydrogen Peroxide Bleaching Process. It is available to bleachers under royalty-free license. Further information available on request.

SOLVAY PROCESS DIVISION
ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
Houston • New Orleans • New York • Philadelphia • Pittsburgh
St. Louis • Syracuse

SOLVAY®

Soda Ash • Caustic Soda • Calcium Chloride • Chlorine • Potassium Carbonate • Sodium Bicarbonate • Caustic Potash • Chloroform • Ammonium Bicarbonate
Cleaning Compounds • Ammonium Chloride • Sodium Nitrite • Aluminum Chloride • Snowflake® Crystals • Methyl Chloride • Para-dichlorobenzene
Monochlorobenzene • Vinyl Chloride • Ortho-dichlorobenzene • Hydrogen Peroxide • Methylene Chloride • Carbon Tetrachloride



Why V-Belts with the Green Seal ?

The Green Seal is put on each Goodyear multiple V-Belt for *your* protection. For it's your sign of a belt with dimensional stability—something long sought but only recently achieved in a complete line of V-belts.

What does dimensional stability mean to you? It means belt length remains the same from factory to drive. The length you order is the length you get. Matched sets stay matched. And mismatching – the biggest problem in belting multiple drives – is now a thing of the past.

How was this dimensional stability achieved? Until recently, stable belt length was possible only with steel cable load carriers as developed by Goodyear. But now it is also accomplished with synthetic cord through the exclusive Triple-Tempered 3-T process that stabilizes length by careful tempering with Tension, Temperature and Time.

Triple-Tempering also gives you a stronger, more shock- and stretch-resistant belt. Add "balanced construction" – with each component of the belt designed to its job—and you have a smoother-, longer-running belt which means maximum, trouble-free horsepower hours at minimum cost.

DIMENSIONALLY STABLE V-BELTS
with the GREEN SEAL by

GOODYEAR

THE GREATEST NAME IN RUBBER

The Goodyear Tire & Rubber Company, Dept. 794, Akron 16, Ohio

Please send me more information about how V-Belts with the Green Seal solve the major problem in belting multiple V-belt drives.

Name_____

Company_____

Street Address_____

City_____ **Zone**_____ **State**_____

Compass, E-C Cord, Hy-T, Green Seal—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

ACTUAL PRODUCTION FIGURES

Prove "Coordinated Production" Pays with the . . .

D&F Model L 84" WOOLEN CARD

Figures from mill after mill prove the new D&F 84" Card can double or triple your production.

Time-study, production records offered by a score of Textile Mills, operating with the D&F "Coordinated Production" plan, now substantiate Davis & Furber claims of outstanding production, yield and quality from the NEW D&F 84" Woolen Card.

Figures from all of these mills indicate that you too can get *two, three* or *even more* times production per Card in your own mill from the new D&F "84." These results come from the following D&F design improvements:

a) **increased effective carding area.**
b) **easy *infinite adjustment* of roll speeds, gauge settings and draft control.**
c) ***Greater percentage of adjustments* with no *shutdown*.**
d) ***convenience and ease of adjustment* promote maximum use to any desired balance of efficiency and quality.**
e) ***higher yield* by *waste reduction*.**
f) ***Card Clothing* custom designed to *fit specific needs*.**

Production figures and design improvements are incorporated in a table and illustrated in a brand new **D&F NEWS QUICK REVIEW,** just off the press. It outlines the complete story in simple visual forms as shown above.

Send for your copy now. This complete picture of practical wool carding can be readily adapted to fit *your* production through the long established Davis & Furber "Coordinated Production" plan.

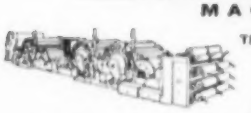
Call or write us now at North Andover or Charlotte.

1832 — "Our 125th Year" — 1957

SERVICE TO THE TEXTILE INDUSTRY

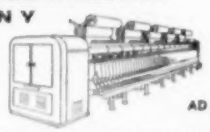
DAVIS & FURBER

MACHINE COMPANY



TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS

North Andover, Mass.
Charlotte, North Carolina



AD 12-4

CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, CARD & NAPPER CLOTHING, GARNET WIRE, TAPES & APRONS
SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

Shorts and Remnants

(Continued from page 22)

between the shoulder and the hips, if you get what we mean. Seems to Ole S&R that's a lot of useless worrying if the hosiery folks themselves don't plug the barelegged look too far. Remember, we said there's nothing more like the bareleg look than the bare leg. And there goes the stocking. But don't blame the interest, it's still there and just as many wolves as before. Just watch for what those coming "Teen Agers" do. They're the answer. We'll still stick with stockings.

► If you still have your magnifying glass, you may be able to get a look at a mess of freckles on Terry Oldham seated at the "Shuttle Flyer,"

Soap Box Derby entry of Watson & Desmond, textile supply firm and TI advertiser, Charlotte, N. C.

► If you're pessimistic about textiles in general, get June "Nation's Business" and read Dr. Joseph S. Doors of the U. S. A. Council of Economic Advisers who is by way of being an expert on population growth influences. In 1960, the Doc says, the % of young'uns going from 12 to 13 (that's "Teen Agers") will increase 40% from 2.75 to 3.8 million per year, and there's where textiles come into their own. Grade kids get by with less. Teen Agers are aware and dress up, or anyway they get their old man to buy them clothes to dress up. And textiles go up! up! up! That's what the Doc says. So just stick around.

Another good mill friend says population growth and mill liquidation curves have just crossed, so look for a good 1958 and from there on "Zowie." We can take it.

► There was the horseplayer on the way to the races who said "I sure hope I break even today. I need the money."

(Continued on page 30)

MAKE USE OF YOUR AIR-RIGHTS

Gaylord Boxes

Open space under your warehouse roof may be clear profit... if you can utilize it by stacking boxes taller. But, before you do, be sure your boxes will stand straight and strong under the increased load. Gaylord containers have this valuable "stack-ability" because they are precision built of the finest quality materials.

For information on containers to help you make full use of all your storage space, call your nearby Gaylord office.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

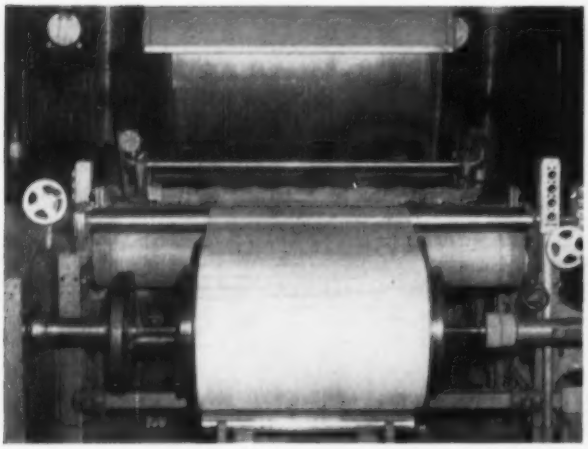
DIVISION OF CROWN ZELLERBACH CORPORATION

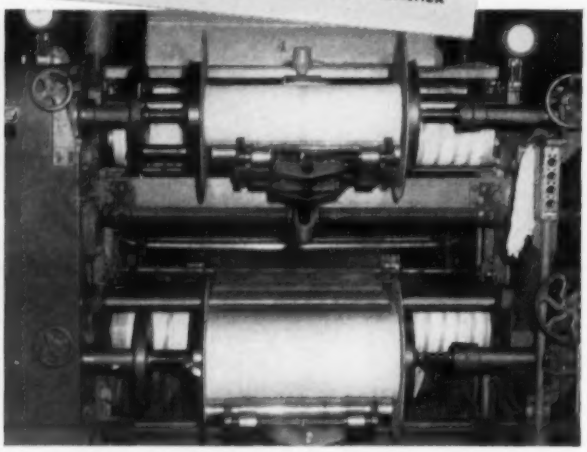
VICKERS® HYDRAULIC SLASHER DRIVES

WIND BETTER LOOM BEAMS FASTER

For

ANY TENSION • ANY SPEED • ANY SET
ANY YARN • ANY DIAMETER • ANY WIDTH
ANY HORSEPOWER • ANY DOUBLE HEAD
ANY SINGLE HEAD • ANY SLASHER





West Point Foundry & Machine Company single and double head slashers with Vickers Hydraulic Drives.

This is the slasher drive that can really meet *all* your needs . . . flexibility is sufficient to cover all known conditions of slashing. Now your yarn and your beams can be wound exactly the way you want them . . . and quality is always the same.

Design is unusually compact . . . the drive requires no floor space outside of the slasher head end frame dimensions. Automatic overload protection and dependability are important features. Completely sealed and inherently self-lubricated, there is no need for oiling and greasing.

ONLY VICKERS HYDRAULIC SLASHER DRIVES HAVE ALL THESE ADVANTAGES:

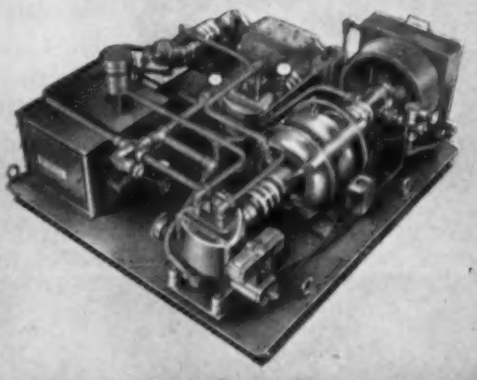
1. **Better Tension Control**
2. **Complete Speed Range**
3. **Smoother Acceleration and Deceleration**
4. **Selective Creep Speeds**
5. **Better Response**
6. **Reduced Operating Costs**

For further information about Vickers Hydraulics on slasher drives, write for Bulletin 55-71. For information regarding application of Vickers Hydraulics to general textile machinery, write for Bulletin 54-66.

VICKERS INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
Machinery Hydraulics Division
ADMINISTRATIVE and ENGINEERING CENTER
Department 1554 • Detroit 32, Michigan

Application Engineering Offices: • ATLANTA • CHICAGO • CINCINNATI CLEVELAND • DETROIT • GRAND RAPIDS • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) PORTLAND, ORE. • ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

STANDARD VICKERS HYDRAULIC SLASHER DRIVE PACKAGE

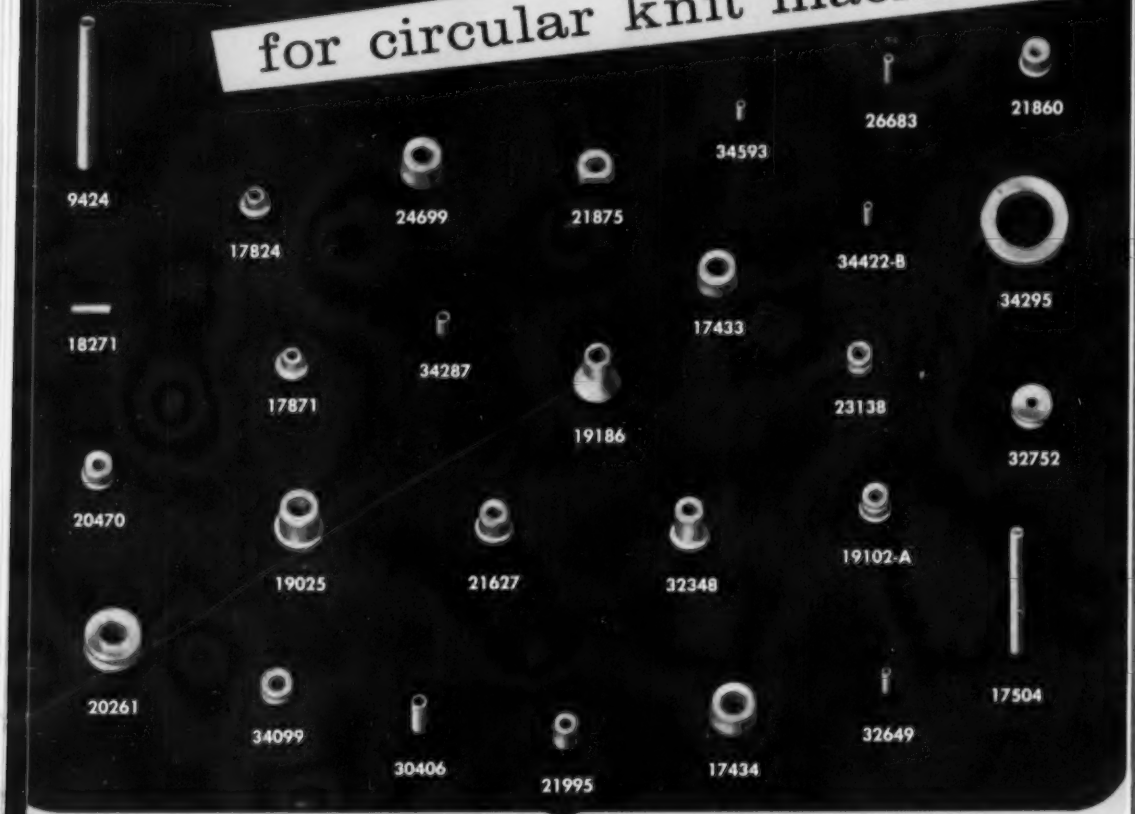


7770

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

ALSIMAG 192 *Guides*

for circular knit machines



You get all these advantages with ALSIMAG guides

LONG LIFE. This very hard, smooth material is homogeneous, thus has no rough underbody.

FEWER REPLACEMENTS. Extra long life of AlSiMag guides means less down time, less labor costs.

BETTER QUALITY. Your product is better because these guides help attain uniform tensions. You also eliminate yarn damages which sometimes resulted from undetected guide failures in old type guides that had a smooth surface and a rough underbody.

UNIFORMITY. AlSiMag guides are uniform dimensionally and physically, from guide to guide and from lot to lot. This speeds installation, helps you to attain UNIFORMLY high quality in your product.

LIGHTER TENSIONS. AlSiMag guides are available in controlled finishes.

STATIC CONTROL. Where static is a problem, AlSiMag guides can be supplied in AlSiMag 193 which is identical to 192 except that 193 is electrically conductive.

PROMPT DELIVERY. Ask us about test samples.

NOTE: These standard AlSiMag Rings are available in various thicknesses; weights in proportion.

A Subsidiary of Minnesota Mining and Manufacturing Company

AMERICAN LAVA CORPORATION

CHATTANOOGA 5, TENN.
56TH YEAR OF CERAMIC LEADERSHIP

SALES ENGINEERS: NEW ENGLAND: W. J. Geary, 27 Fairlawn St., Cranston, R. I., Williams 1-4177. NORTHEAST: J. S. Gosnell, 205 Walnut St., Livingston, N. J., 6-1260. NORTH CENTRAL: Minnesota Mining & Mfg. Co., 367 Grove St., St. Paul 1, Minn., Cedar 3071. NORTHWEST: Minnesota Mining & Mfg. Co., 320 Shaw Road, S. San Francisco 10, Cal., Plaza 6-0800. SOU. CAL.: W. L. Thompson, 6023 South Garfield Ave., Los Angeles 22, Cal., Raymond 3-6641. SOUTH CENTRAL: Minnesota Mining & Mfg. Co., 1221 Dragon St., Dallas 2, Texas. SOUTHEAST: James W. Crisp, Poinsette Apts., No. 2C, Greenville, S. C., 5-4172. ALL OTHER AREAS: J. B. Shacklett, American Lava Corp., Chattanooga 5, Tennessee, AMherst 5-3411. REPRESENTATIVES: CANADA: Ian M. Haldane & Co., P. O. Box 54, London, Ont. ALL OTHER COUNTRIES: Minnesota Mining & Mfg. Co., International Div., St. Paul 6, Minn.

MAINTENANCE SAVINGS COME YOUR WAY with Clipper

HOOKS and LACERS

Even on small-diameter rollers like the one shown above, Clipper machine-laced joints are smooth and flexible and give longer life. Hooks are firmly imbedded flush with the belt surfaces and clinched by up to 45,000 pounds of pressure. Double-staggered gripping and perfectly rounded loops distribute strain evenly. Wear on hooks, belts and machinery is minimized by smoothness of the Clipper machine-laced joint. There is no pounding to cause excessive wear. Save maintenance time and expense and cut unproductive downtime by using Clipper hooks and lacers.

FOR MORE INFORMATION

Detailed product information and case history examples of Clipper machine-lacing benefits are contained in Bulletin No. 157. Send for your free copy today.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W. Grand Rapids 2, Michigan

Shorts and Remnants

(Continued from page 26)

► And the mama flea who was worried that her children were "going to the dogs."

Fans and Condensers

"Would you kindly send us 6 reprints of the article 'Know Your Fans and Condensers' (July '57) . . . "

J. HOWARD THOMPSON
The Barre Wool Combing Co., Ltd.
South Barre, Mass.

" . . . extreme interest to our Sales Engineers. . . . "

WALTER T. ROGERS
Adv. Mgr., Sturtevant Div.
Westinghouse Electric Corp.
Boston, Mass.

How Well Off Is American Textile Worker?

" . . . Please send three reprints of poster 'Buying Power Chart' for use on bulletin boards."

C. A. GRABAREK
Personnel Director
Atwater Throwing Co.
Plymouth, Pa.

" . . . would like to obtain twelve additional copies. . . . "

N. BROWNE GLENN
Supt., Appleton Plant
J. P. Stevens & Co., Inc.
Anderson, S. C.

Warp Sizing

"I would very much appreciate your sending me loose sheets with the articles on warp sizing which commenced in the May, 1956, edition.. . . "

K. S. BUSH
S. P. Alpargatas,
Sao Paulo, Brasil, S. A.

► They haven't ended yet, Mr. Bush; will be reprinted and offered in book form in 1958.

► A good ad agency writing for data replies "Your letter of July 15 as well as other material which you sent along is a veritable gold mine. . . " Now there's a friend for you. Anybody else want to try.

► A German textile firm runs into Apr. '55 Knitter Hints describing waterless wash stations and requests maker of chemical compounds through European Productive Agency; Corduroy article (Apr. '57) gets further inquiries from France and from Lendt & Co., N. Y., who says article of "vital interest to overseas

(Continued on page 34)

Need New Pickers?

. . . then, think of what you get in ALDRICH PICKERS!

As long as there have been pickers, there has been trouble with the shoes that hold the calender rack gears in mesh with their spur gears on the cross-shaft.

These shoes are not on the Aldrich calender. The roller, pictured above, running on an Oilite bushing and attached to a mounting pivoted on a stationary shaft in the calender, holds the calender rack gear exactly in place without any possibility of binding or jamming.

Furthermore, to make sure that the cross-shaft can't stick in a dry bearing, this shaft is mounted on ball bearings, which are permanently lubricated.

This is one of the many improvements in the Aldrich picker which eliminate trouble and help to make better laps.

AldricH MachinE WorkS

Greenwood, South Carolina

Parks-Cramer®

Systems for Textile Mills

Complete Air Conditioning
—including filtering and refrigeration

Automatic Airchanger®

Direct Humidification
—GRADUMATIC® and TURBOMATIC®

Automatic Regulation
of temperature and humidity—PSYCHROSTAT®

* * *

Traveling Cleaners for Textile Machines
—roving, spinning, winding, spooling,
twisting, warping, knitting, weaving.

SpinSaVac® broken end collection—unit or central

SpinSaCreel

Traveling Room Cleaners and Floor Sweepers
—with vacuum lint removal at floor level

* * *

Research, design, manufacture,
installation, service

Parks-Cramer Company

Air Conditioning and Air Handling since 1906
Traveling Cleaners since 1926

FITCHBURG, MASS. • CHARLOTTE, N.C. • ATLANTA, GA.

484

TERMACO

SMOOTH

RESILIENT-DURABLE

SOLD EXCLUSIVELY BY

THE TERRELL MACHINE COMPANY, INC.
CHARLOTTE, N. C.

MANUFACTURED BY

DENMAN RUBBER MANUFACTURING COMPANY
WARREN, OHIO

LIFT TRUCK EQUIPPED WITH BALE-GRAB REDUCES HANDLING COSTS FOR TEXTILE MILL (AS MUCH AS 90% IN HANDLING STARCH)

Unloading bales from boxcar (2 at a time) with Bale-Grab clamp.

Steep ramp easily negotiated with two 500-lb. bales.

Stacking bales 2 tiers high in a boxcar.

CHESTER, S. C.—Gayle plant of Spring Cotton Mills reports the mechanization of many handling operations formerly performed manually, with marked reduction in overall costs. Using a Hyster 2000-lb. capacity lift truck and a Hyster Industrial Tractor, a wide diversity of materials are handled efficiently, such as cotton bales, textile waste, starch, and rolls of cloth.

The Hyster® Lift Truck is equipped with Free-Lift Uprights which make possible elevation of the load without raising the lift truck uprights . . . thus permitting loaded trucks to pass under low doorways and ceilings, and into boxcars. The truck also is equipped with a Load-Grab® Clamp which picks up bales of cotton and waste (or rolls) with a side-squeezing action. This combination of equipment performs many handling jobs which, according to company officials, is materially reducing overall handling costs.

For example, handling costs on starch alone are 1/10 of what they formerly were. Now, 56,700 pounds of starch are unloaded, hauled and placed in storage by one man and a lift truck in 1½ hours.

Your Hyster Dealer may help you achieve similar cost reductions, because it is his business to keep up with materials handling progress in textile mills. Call him today.

Quickly converted to regular fork operations, Hyster lift truck easily moves a 2000-lb. load of starch to storage.

Free-Lift uprights are essential for high stacking in low-ceiling warehouses. Load-Grab clamp is handling rolls of wrapped cloth.

Call your Hyster Dealer today. He is listed in your telephone directory under "Trucks-Industrial"

HYSTER COMPANY

HYSTER

Hyster Industrial Trucks Increase Profits for Textile Mills

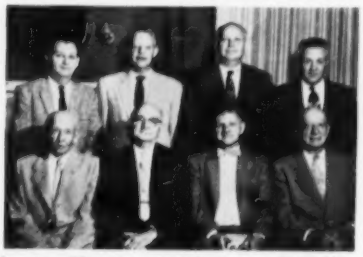
2902-57 N. E. Clackamas. . Portland 8, Oregon
1010-57 Myers Street. . . . . Danville, Illinois
Hyster N.V. . . . . Nijmegen, The Netherlands
FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

Shorts and Remnants

(Continued from page 30)

customers considering purchase of corduroy machinery . . . "; **W. L. Simon,** Pres. Amer. Finishing Co., Memphis, Tenn., wants extra copy July.

► President for 25 years is the record of **W. G. Harris,** second from left in the front row below of Meese, Inc., executives at meeting to cele-



brate 25-year employees. Standing behind Mr. Harris in picture is **D. P. Meese,** Treas. of firm making canvas baskets, trucks for textiles.

► **G. T. Brown,** Sec. of good advertiser Whitinsville (Mass.) Spinning Ring Co., asks for three reprints on "Purchasing" (Feb. '57) and **F. Milne,** Pur. Agt., Paton Mfg. Co., Ltd., Sherbrooke, Que., Canada, wants two reprints of same issue as well as three copies of "Traveler Speeds" (Mar. '57). Other reprint requests come from **Billy Bolive,** Fieldcrest Mills, Spray, N. C. ("Terry Towels," Mar. '54); Celanese Corp. of America, Narrows, Va. ("Training Supervisors," Aug. '49); Dow Chemical Co., Pittsburg, Calif. ("Spinning Drafts," June '57).

► **L. C. Stilp,** Gen. Pur. Agt., Kimberly-Clark Corp., Neenah, Wis., writes for '56 ANNUAL EQUIPMENT PARADE & BUYER'S GUIDE. Even paper mills want it. Be on the lookout for '57 edition of this issue in Mid-November.

► Veteran 80-year textile worker, irked on having to retire, complains of backache brought on by hard work in the mill. Younger executive (60) vows that if hard work will get him to the 80-year point, he's going to step it up.

► "The man who knows how will always have a job; the man who knows why will be his boss."

► Short summer, wasn't it?

"... Si's new secretary certainly has a magnetic personality. . . ."

The cartoon above doesn't have a blessed thing to do with textile chemicals or Seyco's 53 years of textile chemical manufacturing.

But it does remind us that often a mill department other than wet processing gives us a service problem.

We usually come up with the answer.

Warp Sizing: *Softeners, Binders, Penetrants, Ty-In Penetrants, Shuttle Dressing, Waxes.*

Wet Processing Chemicals and Auxiliaries: *Dye Assistants, Penetrants, Rewetting Agents, Sanforized Fabric Oils, Detergents, Scouring Agents, Softeners.*

Niagara Twist-Setter: *Yarn Conditioning Penetrants.*

Seyco Warp Lubricator.

Headquarters for textile chemicals

SEYDEL-WOOLLEY & CO.

748 RICE STREET, ATLANTA, GEORGIA

SEYCO

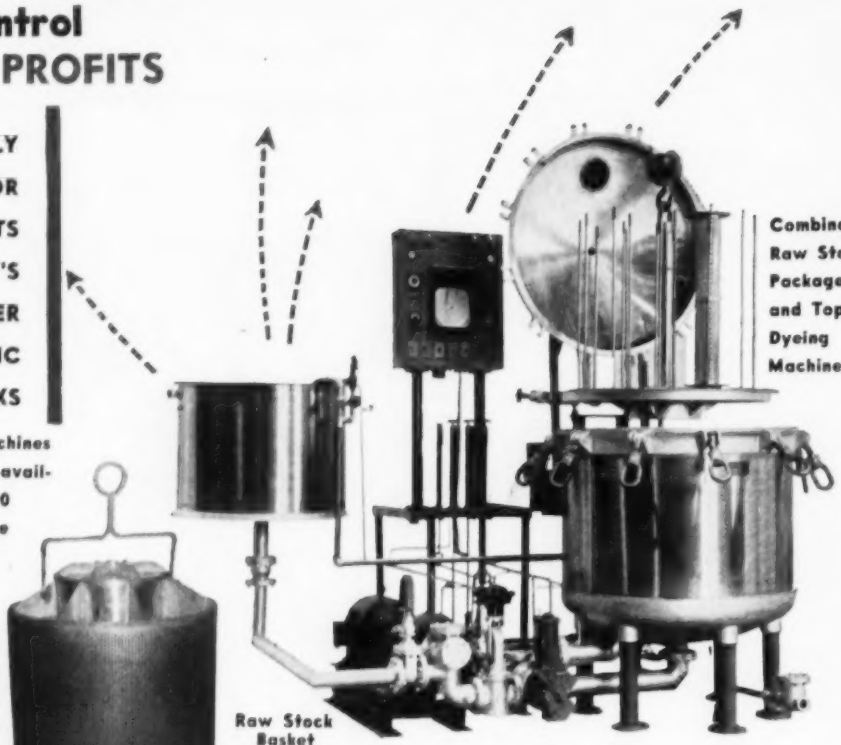
RAW STOCK MACHINES
that let you control
QUALITY AND PROFITS

ESPECIALLY DESIGNED FOR BETTER RESULTS ON TODAY'S NEWER SYNTHETIC STOCKS

Conventional stock dyeing machines with one-way circulation are available in sizes from 1 to 1500 lbs. These machines can be built for use with racks commonly used for cotton or wool stock.

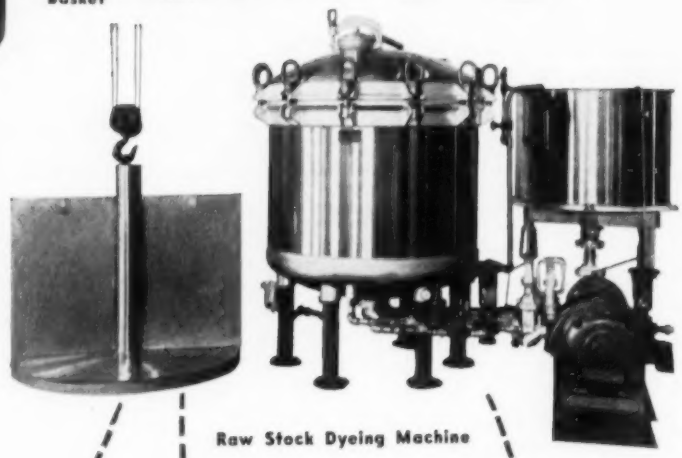
It has been found by actual experience that most of the newer synthetic stocks can be dyed more successfully in perforated stainless steel baskets, with the dye liquor flowing horizontally "inside-out" or "outside-in". The conventional raw stock machine with one-way circulation has a downward flow which causes packing and felting of the stock and this is not desirable.

Machines are available for various capacity baskets and they can be arranged for horizontal flow one-way or both ways according to individual requirements. Machines can be built to accommodate package carriers, top carriers, beams, stock baskets and stock carriers if requirements demand such flexibility. These machines would of necessity be equipped with two-way reversible flow.



Combination Raw Stock, Package and Top Dyeing Machine.

Raw Stock Basket



Raw Stock Dyeing Machine

Gaston County Dyeing Machine Co.

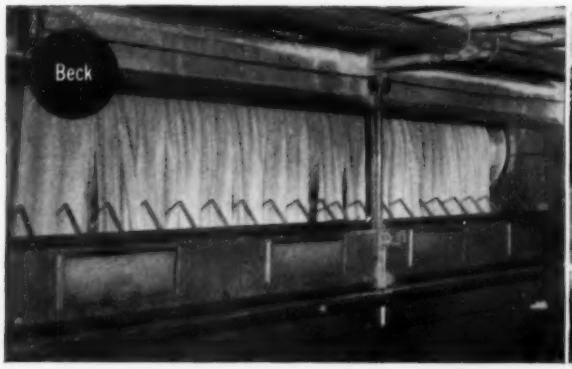
PIONEERS IN AUTOMATICALLY CONTROLLED DYEING MACHINES

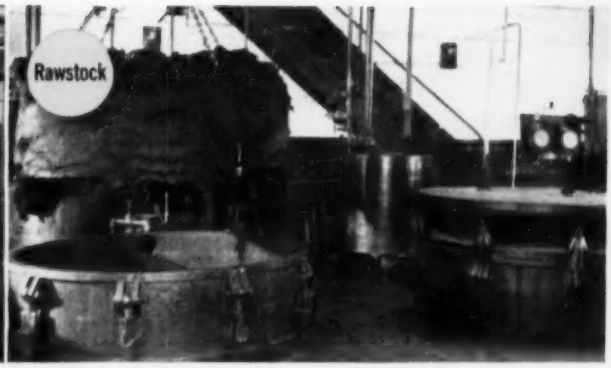
Gaston Co. Dyeing Machine Co.
Terminal Bldg., 68 Hudson Street
Hoboken, N. J., G. Lindner, Mgr.

The Rudel Machinery Co., Ltd.
614 St. James Street W., Montreal
260 Fleet St. E., Toronto

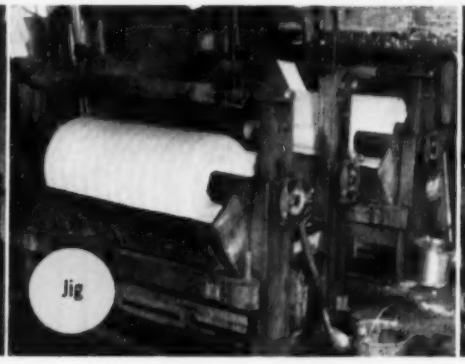
A. R. Breen
80 E. Jackson Blvd.
Chicago, Ill.

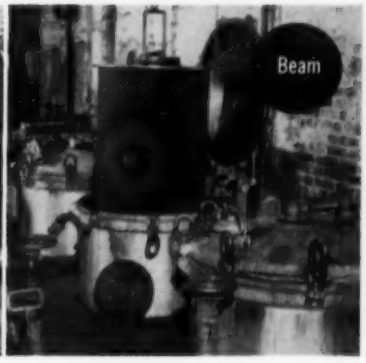
STANLEY, NORTH CAROLINA



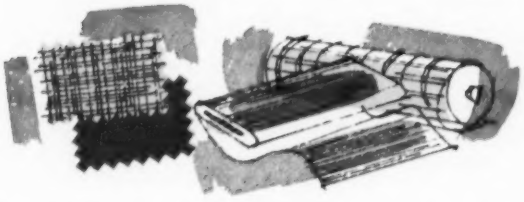


Whenever an all sodium salt* is required for dyeing...





Use MORTON Chemical Grade '999' Salt



*Morton 'Chemical Grade 999' is the all sodium salt (sodium chloride and a trace of sodium sulphate). It contains no calcium compounds that can cause cut threads, off-shading, and costly shutdowns.

Morton 'Chemical Grade 999' Salt can help you to get softer finishes, more even shades, greater color intensity. That's because Morton 'Chemical Grade 999' is a low cost, high purity evaporated salt, free of objectionable calcium and magnesium compounds.

Morton 'Chemical Grade 999' is more than 99.9% pure sodium chloride, recommended for use whenever commercial calcium-free salt is required.

Available in 100-lb. bags or bulk, 'Chemical Grade 999' is specifically recommended when direct salting is used in dyeing rawstock, package, beam, beck or jig with either sulphur, direct, or naphthol dyes.

☐ Please send me more information about Morton 'Chemical Grade 999' Salt.

☐ I would also like to know how much I can reduce calcium and magnesium content by using Morton 'Chemical Grade 999' Salt. Please have a Morton Brine Engineer call on me to explain the benefits of using 'Chemical Grade 999' Salt.

Name_____

Title_____

Company_____

Street Address_____

City_____ Zone_____ State_____

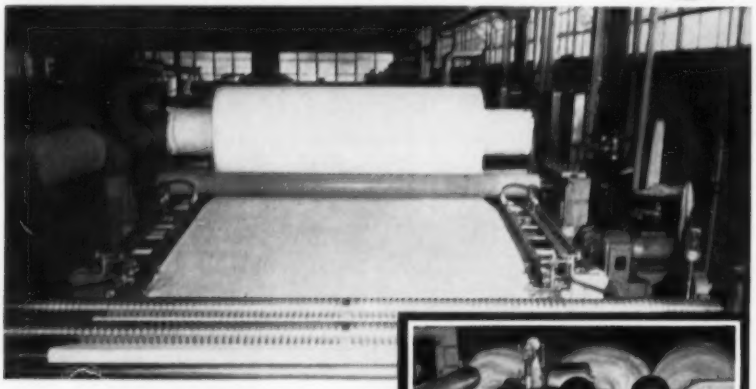
MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. TI-9, 120 So. LaSalle Street, Chicago 3, Illinois

Askania Regulator Company NEWS

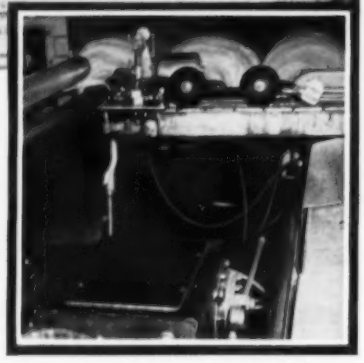
AUTOMATIC CLOTH GUIDES FOR TENTER FRAMES, TENTER BATCHERS, LABEL MARKERS, TUBERS AND EXAMINERS



ASKANIA CLOTH GUIDE ASSURES UNIFORM DYEING

Applied to
McCreary-Burlington Tenter Batcher
at Milco Undergarment

Askania Cloth Guide Controls, installed on *McCreary-Burlington* Tenter Batchers lay the cloth on the pins with consistent accuracy at the Milco Undergarment Co. plant in Bloomsburg, Pa. The guide accurately positions the entrance rails so that at the exit end any fabric, in any width, is wound at uniform, controlled tension into a compact, uniformly-wound roll, permitting the highest accuracy in the dyeing process.



Accurate control of batcher roll winding is essential to uniform dyeing

ACCURACY • SPEED • VERSATILITY • ECONOMY • SIMPLE INSTALLATION and MAINTENANCE

ASKANIA Cloth Guide Controls can be installed on new or existing equipment. It automatically handles any cloth including flimsy lace, delicate silks, coarse mesh cloth, synthetics, *without contact with the cloth.*

NEW ASKANIA REGULATOR APPLICATION BULLETIN

Bulletin No. 22.1 provides the full information, including application diagrams and illustrations you need to determine cloth guide control potentials in your own plant.

For instance, you'll find the answers to these questions.

1. How ASKANIA Cloth Guides assure clipping, pinning closer to the selvage.
2. How the Cloth Guide can be quickly and easily installed on new or existing machines by any competent mill mechanic.
3. Why the Cloth Guide reacts to the flimsiest material with instant speed and powerful force.
4. How you can improve quality and efficiency in many finishing mill operations.

WRITE FOR YOUR COPY TODAY TO ASKANIA REGULATOR COMPANY, 260 E Ontario Street, Chicago 11, Illinois.

ASKANIA REGULATOR COMPANY
"CONTROLS FOR INDUSTRY"
HYDRAULIC, ELECTRONIC CONTROLS & SERVOS, GENERAL SYSTEMS, ENGINEERING & COMPUTER SERVICE, VALVE ACTUATORS & CYLINDERS

A SUBSIDIARY OF GPE

Personal NOTES

ABOUT MEN YOU KNOW

Effective September 1, **Chauncey W. Lever,** director of public relations for the 27 plants of Abney Mills and Erwin Mills in S. C., N. C., and Miss., will join The South Carolina National Bank as vice-president in charge of the newly created commercial and industrial development division. * * * **Joseph V. Brice** has been named superintendent of the Renfrew Bleachery of Abney Mills, succeeding **Benjamin N. Anderson** who retired in July, after fifteen years of service. **John O. Vernon, Jr.,** foreman of the dyeing department, succeeds Mr. Brice as assistant superintendent, and Mr. Vernon is succeeded by **William L. Hayes.**

John S. Holland, Jr., member of the editorial staff of the *Greensboro (N. C.) Record* for nearly 11 years, has joined the staff of the American Cotton Manufacturers Institute as public relations representative for North Carolina, with headquarters in Greensboro.

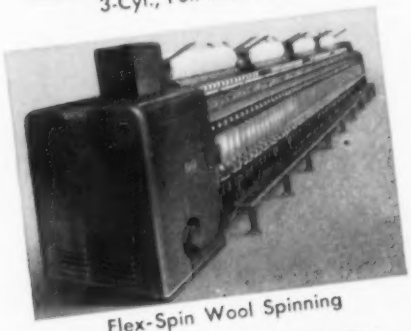
At American & Efird Mills, Inc., Mount Holly, N. C., **E. H. Timanus** has been promoted from assistant to vice-president in charge of spun fibers. Other promotions include **Robert H. Crawford** of the sales yarn division to assistant vice-president and assistant sales manager; **Robert F. Jesson,** assistant vice-president of the textured yarn division; and **E. R. Abernathy,** assistant secretary-treasurer.

Now heading all administrative functions in New York for Amerotron Corp. is **Ronald R. Boyd** who has been appointed to the newly-created post as executive vice-president. Mr. Boyd was previously a vice-president and in charge of liaison between the mill production and sales departments. **Charles Earle, Sr.,** sales manager of Department 4, woolen fabrics from the Barnwell, S. C., mill, has been appointed a vice-president. **Raymond J. Austin,** who has been promoted to treasurer, is succeeded as controller by Joseph Sandlin. * * * At the Barnwell, S. C., plant, **Maurice Frew** has assumed the duties of personnel director, replacing **Walter A.**

(Continued on page 42)

Put Magic in YOUR carpets with carpet yarns prepared and processed on WHITIN MACHINERY

3-Cyl., Full Roller Card Set



Flex-Spin Wool Spinning

The "Magic" is created by processing the yarns on machinery which brings out the best carpet-making qualities inherent in the fibers, either natural or synthetic.

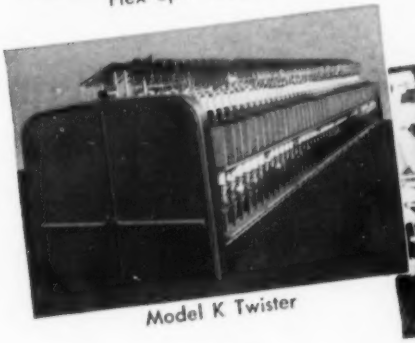
Top ranking carpet mills across the country depend on Whitin equipment to do just that, every step of the way — from carding through spinning to twisting and winding.

Descriptive literature available on all of the machinery shown. We would be happy to mail it to you.

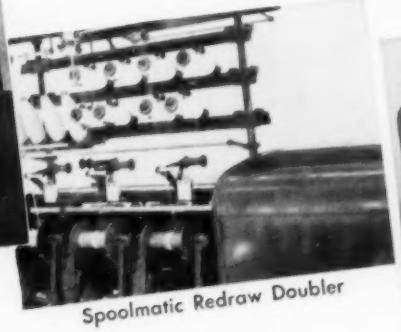
Whitin MACHINE WORKS

WHITINSVILLE, MASS.

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA.
SPARTANBURG, S. C. • DEXTER, ME.



Model K Twister



Spoolmatic Redraw Doubler

Cable-King Uptwister

2 TIME-TESTED MILL-PROVEN

aids to better dyeing and stripping

ALGEPON® V A VAT DYEING & STRIPPING AUXILIARY

- improves the efficiency of vat dyeing and is also effective in stripping vat and naphthol colors
- as a dye bath additive, Algepon V A retards the development of the shade, preventing premature oxidation of the color, achieving better color dispersion and producing a level, full shade
- highly effective for pigment pad method of dyeing
- very useful in leveling defective vat dyeings without completely stripping and re-dyeing
- because it stabilizes the reduced bath and holds the color in the leuco state longer, Algepon V A is particularly efficient in stripping vat and naphthol colors in conjunction with hydro and caustics

ALGEPON® A K STRIPPING AUXILIARY

- recommended by leading pigment manufacturers for stripping their colors
- especially effective for this group of colors in alkaline hydrosulphite stripping baths
- produces a whiter ground for re-dyeing

AC INC.®

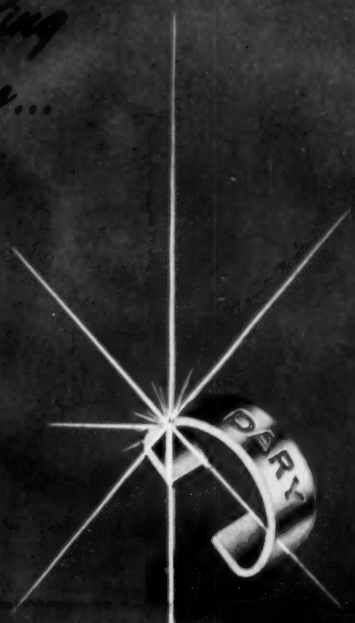
ARKANSAS CO., INC.

Serving the Textile Industry for over 50 Years

NEWARK • NEW JERSEY

Since 1898

Dary Ring Travelers...



THE DARY RING TRAVELER CO.

TAUNTON, MASSACHUSETTS

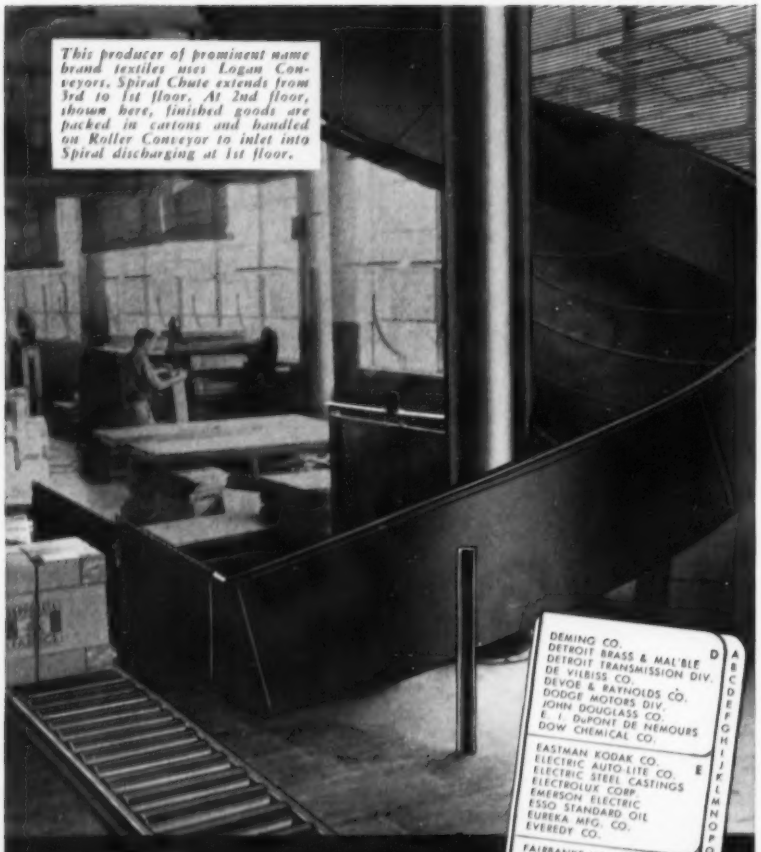
LINDSEY I. PHILLIPS, Treasurer, Taunton, Mass.

Consult your friendly Dary Representative:

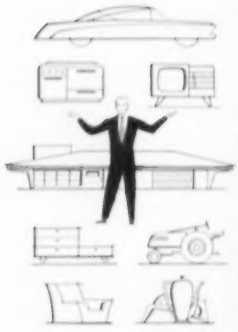
JOHN H. O'NEILL — Box 720, Atlanta, Ga.

JAMES M. CARVER — Box 22, Rutherfordton, N. C.

CRAWFORD "JACK" RHYNER — Box 2261, Greenville, S. C.


This producer of prominent name brand textiles uses Logan Conveyors. Spiral Chute extends from 3rd to 1st floor. At 2nd floor, shown here, finished goods are packed in cartons and handled on Roller Conveyor to inlet into Spiral discharging at 1st floor.
DEMING CO.
DETROIT BRASS & MALLBLE
DETROIT TRANSMISSION DIV.
DE VILBISS CO.
DEVOE & RAYNOLDS CO.
DODGE MOTORS DIV.
JOHN DOUGLASS CO.
E. I. DuPONT DE NEMOURS
DOW CHEMICAL CO.
EASTMAN KODAK CO.
ELECTRIC AUTO-LITE CO.
ELECTRIC STEEL CASTINGS
ELECTROLUX CORP.
EMERSON ELECTRIC
ESSO STANDARD OIL
EUREKA MFG. CO.
EVEREDY CO.
FAIRBANKS MORSE
FARNSWORTH RADIO & TV
FIRESTONE TIRE & RUB.
FISHER BODY CORP.
FLEISCHMAN CO.
FLINTKOTE CO.
FORD MOTOR CO.
FRANKFORT DISTILLERY
(cont.)
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The LEADERS use Logan



"Staying out in front" often is just as difficult as getting there in the first place. That is one of the reasons why America's leading industries depend on Logan Conveyors as an integral part of their productive processes. Speeding output, enlarging capacity, conserving manpower, and decreasing labor turnover are major Logan functions which you, too, can use to advantage. Write for nearest engineer or for further information.

LOGAN CO., 206 CABEL ST., LOUISVILLE 6, KY.

Logan Conveyors

Personal NOTES ABOUT MEN YOU KNOW

(Continued from page 38)

Murray, Jr., who was transferred to the Williamston, S. C., mills in the same capacity. Mr. Frew was formerly employed by the Columbia division of Pacific Mills as personnel director.

O. A. Mace, Sr., has assumed the duties of plant superintendent at Aragon (Ga.) Mills, replacing N. C. Davenport, resigned. Mr. Mace, who has been in the textile industry for approximately 41 years, went to Aragon from Chickamauga, Ga.

For his efforts toward enforcing traffic safety, **Hugh M. Comer,** board chairman of Avondale Mills, Sylacauga, Ala., has been named winner of the first Safety Crusade certificate of commendation to be awarded in the state of Alabama. At the time he received the award, he was also recognized for his leadership of the Alabama Safety Council.

At Berkshire Hathaway, Inc., Providence, R. I., following 47 years of service, **John H. McMahon** has retired as chairman of the board of directors, for reasons of health. He continues as a member of the board and will also act as a consultant to the corporation. **Malcolm G. Chace, Jr.,** formerly president, has been named chairman to succeed Mr. McMahon. **Seabury Stanton** has been chosen president and will also continue as chairman of the executive committee. Mr. Stanton has been elected president of the New Bedford (Mass.) Institution for Savings Bank, succeeding the late John Duff, Jr.

Ronald K. Getman has joined the engineering department of the research and development division of Callaway Mills Co., LaGrange, Ga., as an industrial engineer. Mr. Getman was formerly sales engineer for the I. M. C. Equipment Co., Inc., Atlanta, Ga.

John G. Robinson has been promoted to treasurer and general manager of Cheney Brothers, Manchester, Conn., succeeding R. A. Hoffmaster, resigned.

Thomas Rainville, formerly manager of the now inoperative rayon division of Chicopee Manufacturing Co., Manchester, N. H., is the newly-

(Continued on page 48)

ACRYSOL GS

Fabric backings go on easy and last long

A little bit of ACRYSOL GS thickener goes a long way in improving the backing of carpet and upholstery fabrics. First off, application is easier because ACRYSOL makes compounds unusually smooth in texture and exceptionally stable in viscosity. Secondly, the backing itself is better. That's because ACRYSOL GS provides a smooth coating with excellent resistance to aging, dusting, and unusual uniformity in application.

ACRYSOL GS is so widely compatible and such an efficient thickener that it can be used with many resins, latex emulsions, and filler ingredients. For still other backing systems, two new thickening agents are also available. ACRYSOL ASE-60, a non-linear thickener, provides high viscosity in small concentrations. ACRYSOL ASE-75, a linear thickener, is especially suitable for GRS rubber.

ACRYSOL is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

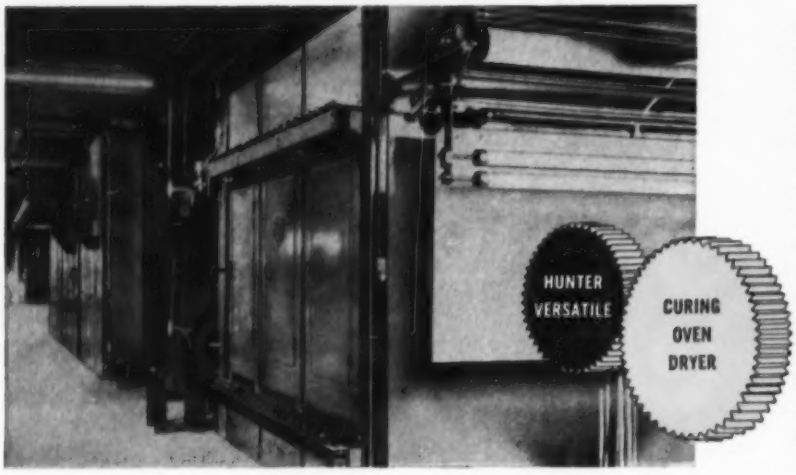
ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

SETTING CURING AND DRYING RECORDS FOR

PLUS PRODUCTION *and* PLUS PROFIT!



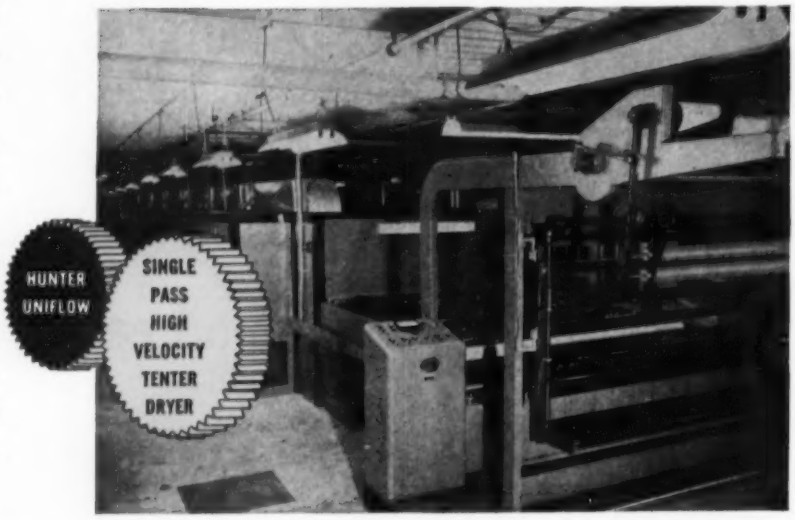
AS A DRYER has actually removed as much as 1,600 pounds of water per hour in a 3-section unit. Will increase production and quality, processing cottons, all synthetics, wools and blends.

AS A CURING OVEN controlled high temperature heat engineering improvements assure uniform, faster production of all resin-treated fabrics.

VERSATILITY IS PROVED by many successful installations in range . . . as independent unit . . . and in otherwise submarginal, unuseable plant space — as Curing Oven, Dryer, or *both*.

DELIVERS SUBSTANTIALLY HIGHER RATE of production per yard of holding capacity than has heretofore been possible — 60 yds. per minute on 10 oz. fabric — in processing spun synthetics, blends, woolen and worsted fabrics.

IMPROVED AERODYNAMIC ENGINEERING and refinements in construction mean higher productive capacity per dollar of capital outlay . . . reduced maintenance costs . . . and completely automatic control for *completely* uniform drying.

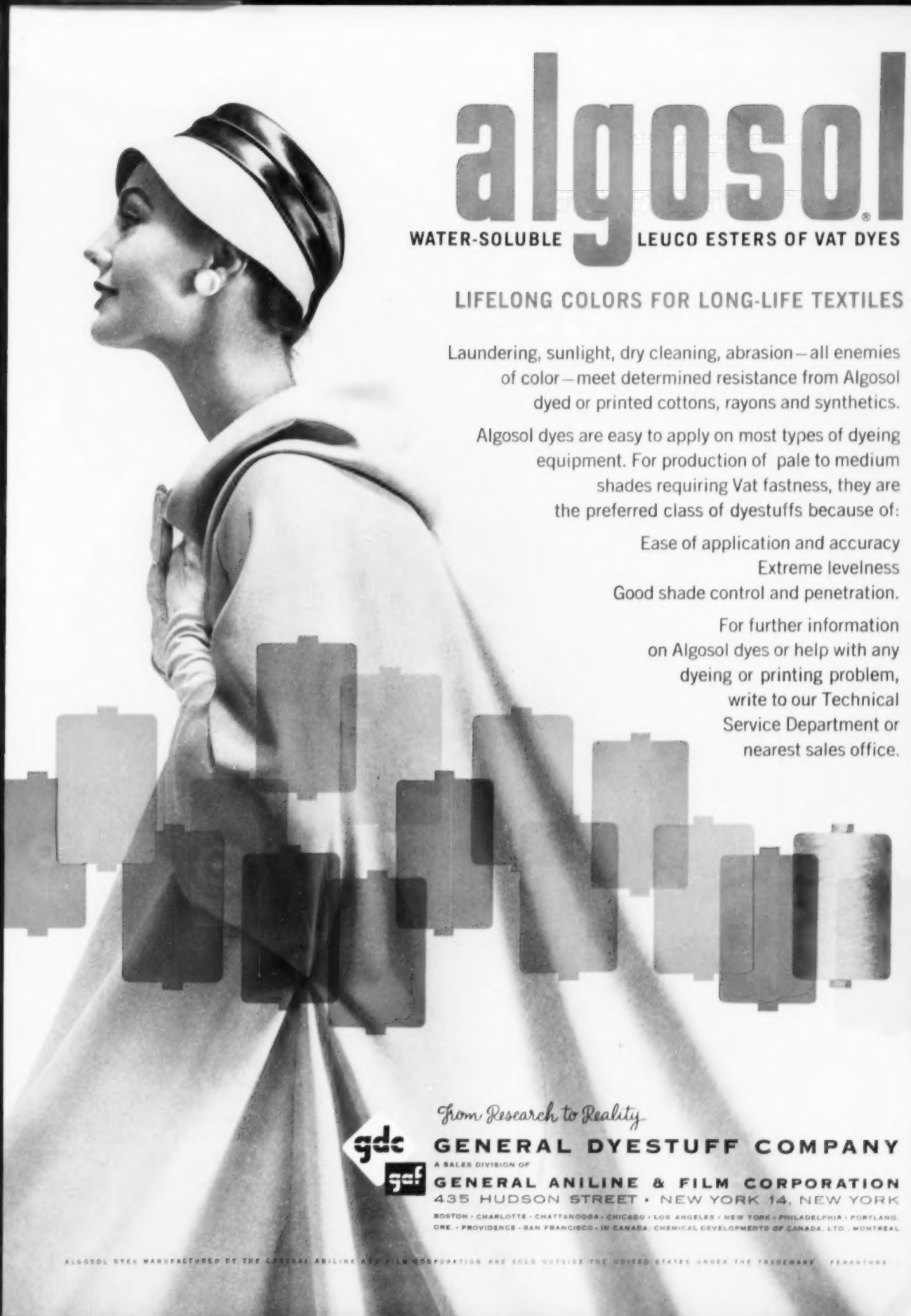


today ask for a Hunter Sales Engineer to show how these machines can set *records* in your plant!

JAMES HUNTER
MACHINE COMPANY
North Adams, Massachusetts • Founded 1847

JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS, MASS.

BUILT BY HUNTER
...IT'S DEPENDABLE



algosol®

WATER-SOLUBLE LEUCO ESTERS OF VAT DYES

LIFELONG COLORS FOR LONG-LIFE TEXTILES

Laundering, sunlight, dry cleaning, abrasion—all enemies of color—meet determined resistance from Algosol dyed or printed cottons, rayons and synthetics.

Algosol dyes are easy to apply on most types of dyeing equipment. For production of pale to medium shades requiring Vat fastness, they are the preferred class of dyestuffs because of:

Ease of application and accuracy
Extreme levelness
Good shade control and penetration.

For further information on Algosol dyes or help with any dyeing or printing problem, write to our Technical Service Department or nearest sales office.

From Research to Reality

gdc gaf

GENERAL DYESTUFF COMPANY

A SALES DIVISION OF

GENERAL ANILINE & FILM CORPORATION

435 HUDSON STREET • NEW YORK 14, NEW YORK

BOSTON • CHARLOTTE • CHATTANOOGA • CHICAGO • LOS ANGELES • NEW YORK • PHILADELPHIA • PORTLAND, ORE. • PROVIDENCE • SAN FRANCISCO • IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA, LTD., MONTREAL

ALGOSOL DYES MANUFACTURED BY THE GENERAL ANILINE AND FILM CORPORATION ARE SOLD OUTSIDE THE UNITED STATES UNDER THE TRADEMARK "FENANTHRA"

THE OLD MILL AT REX, GEORGIA

NO. 4 IN A SERIES OF AMERICAN LANDSCAPES PRESENTED BY MORTON MACHINE WORKS, INC.

*THE OLD BOSS DYER SAYS:

Colored fabric and colored yarn for the tufting industry is becoming increasingly important. Inasmuch as tufters may buy dyed yarn in small lots, but purchase identical shades on reorder, the dyer must be able to match colors without the slightest variation in shade. Keep all dyeing formulas and procedures accurate and filed for reference, along with grey and dyed samples.

* The Old Boss Dyer reminded us that sometimes folks get a little tired of everybody trying to sell them something.

Okay. This month we'll forget about MORTON SYSTEM DYEING MACHINERY. Instead, maybe you'll be interested in a study of the old and the new . . . note the jet vapor trails as a background for the old mill at Rex, Georgia.

(Confidentially, though, we are now manufacturing a large quantity of dyeing machinery for our friends in the mills. We would appreciate the privilege of placing your machinery and supply requirements in our production schedule. May we hear from you?)

MORTON MACHINE WORKS, Inc.

COLUMBUS, GEORGIA, U. S. A.

Manufacturers of the MORTON SYSTEM Machinery for Dyeing and Bleaching of:
BEAMS -:- PACKAGES -:- STOCK -:- PIECE -:- TOPS

VALVES — PUMPS — BEAM AND PACKAGE EXTRACTORS AND DRYERS — DYE BEAMS, ALL MAKES AND DESIGNS — DYE TUBES — DYE SPINDLES — TUBE SPACERS — STAINLESS STEEL DYE TUBES — CUSTOM BUILT TANKS TO CUSTOMER'S SPECIFICATIONS

OUTPERFORMS — OUTSELLS
ALL OTHERS COMBINED!

BOTH HEAD AND BASE SWIVEL FOR ADJUSTMENT

SAVES LABOR

EASIER TO INSTALL

TAKES LESS FLOOR SPACE

McDONOUGH
UNIVERSAL CARD COILER
(Patents Pending)

This coiler is its own best salesman. It outsells all the rest put together because it out performs all others. It saves labor by putting more sliver in the can. Its quality construction, including sealed ball-bearings, hardened steel gears, etc., means extra years of dependable service. Ask for free folder with complete specifications.

Let this coiler prove its worth to you in your mill. Have one installed on a

90 DAY TRIAL *Without Obligation*

Since 1890

McDONOUGH POWER EQUIPMENT, INC.
MACHINE & FOUNDRY DIVISION
McDONOUGH, GA., U.S.A.

Personal NOTES ABOUT MEN YOU KNOW

(Continued from page 42)

named general manager of Roje Mills, West Warwick, R. I.

At Clemson, S. C. College, **Gaston Gage,** professor of textiles and head of the yarn manufacturing department, has been named acting dean of the school of textiles, succeeding Dr. Hugh Brown, resigned.

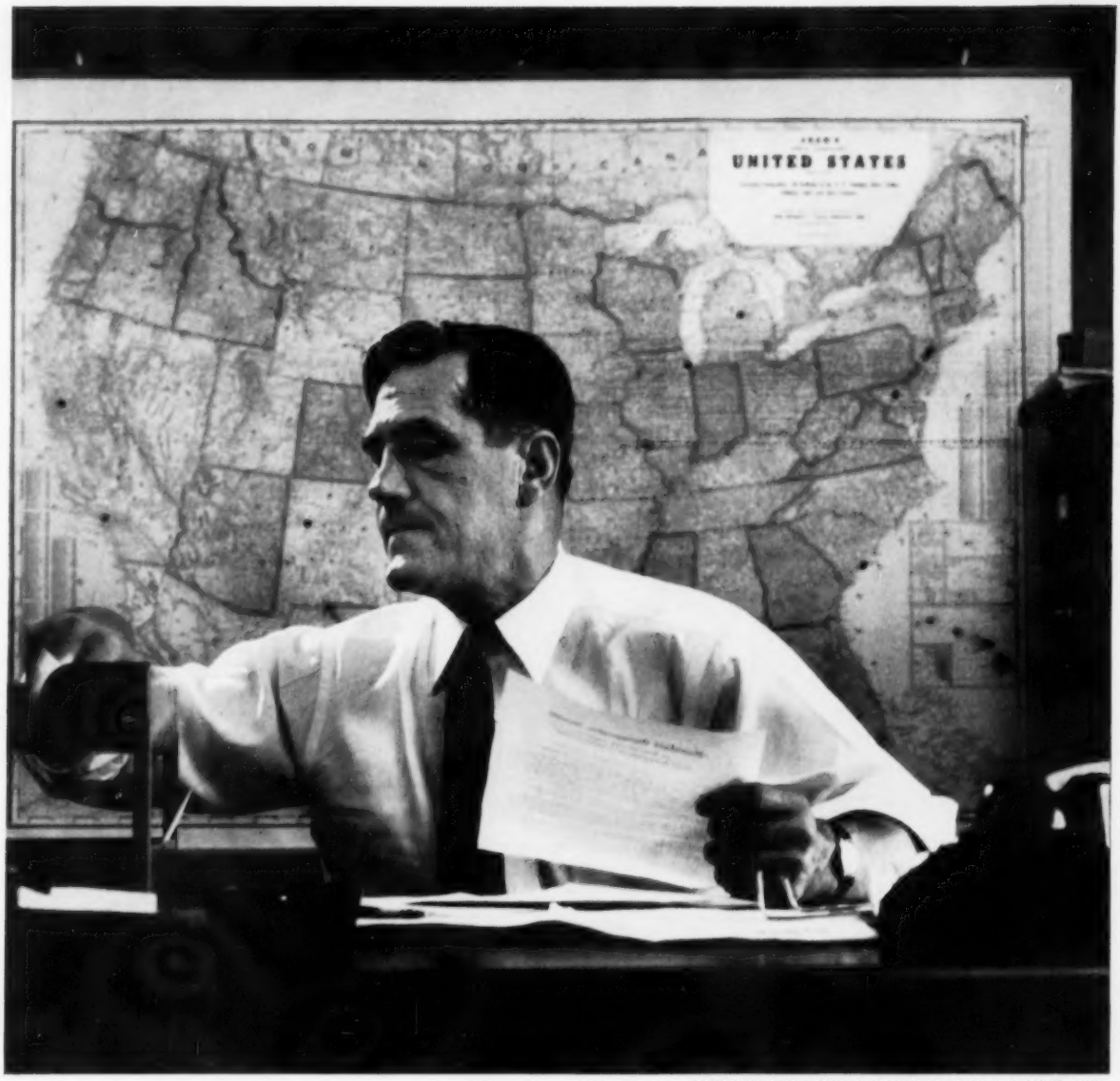
Howard Randolph Stone has been named superintendent of Cone Mills' Edna Plant, Reidsville, N. C., succeeding **Clarence L. Jolly** who has retired because of ill health, following 15 years service as superintendent. **Howard Shell,** with the firm since 1952, has been named assistant superintendent, succeeding Mr. Stone.

George R. Bridge, who was assistant agent in charge of all mill operations at Continental Mills, Lewiston, Maine, from 1941 to 1946, is now with the plant as vice-president and general manager. In the interim Mr. Bridge was with Bates Manufacturing Co. as assistant to the president and plant manager of the York division, Saco, Maine, which division has recently been closed.

At Davenport Hosiery Mills, Chattanooga, Tenn., **J. H. Davenport, Jr.,** formerly vice-president, has been elected president to succeed **J. Tally Johnston** who was named to fill the newly created office of chairman of the board. Chosen vice-president was **Philip G. Forsythe,** and secretary-treasurer, **J. R. Wilkinson.**

Newly-named director of product development at Fieldcrest Mills, Spray, N. C., is **Roger Conant,** formerly with Ely Walker & Co., a division of Burlington Mills.

Deering, Milliken & Co. has announced the promotion of **James Vinson,** formerly assistant overseer of carding and spinning at Hatch Mill Corp. in Columbus, N. C., to overseer of carding and spinning at Excelsior Mills, Rutherfordton, N. C. Mr. Vinson succeeds **Harrison M. Ford,** who has retired following 16 years of service to the firm. * * * **R. H. Jones** has been promoted to the newly-created position of plant manager of Kingstree (S. C.) Manufacturing Co., and is succeeded as production



COPYRIGHTED MAP COURTESY OF THE GEORGE F. CRAM CO., INC.

This man has 48 states on his mind

(His job is moving Dow Caustic Soda into your backyard)

He's learned to think in terms of the best type of transportation, time in transit and customer convenience in receiving. He's an important link in the long chain of people who produce, sell and deliver Dow Caustic Soda.

Dow caustic in many forms—solid, flake, ground and solution—moves into the backyards of American industry from several strategically located shipping points.

It is shipped direct from three Dow producing plants located at Freeport, Texas; Midland, Michigan; and Pittsburg, California. A new plant at Plaquemine, Louisiana, will be in production in 1958.

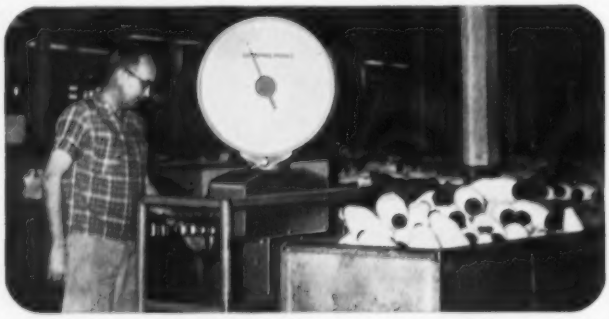
It is also distributed through terminals at Bayonne, New Jersey; Carteret, New Jersey; Port Newark, New Jersey; Charleston, South Carolina; Chicago, Illinois; Baltimore, Maryland; and Los Angeles, California. A new terminal at Grants, New Mexico, will help to provide even better service to Dow Caustic Soda customers.

For more information about the advantages of buying caustic from Dow, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Department AL 604F-1.

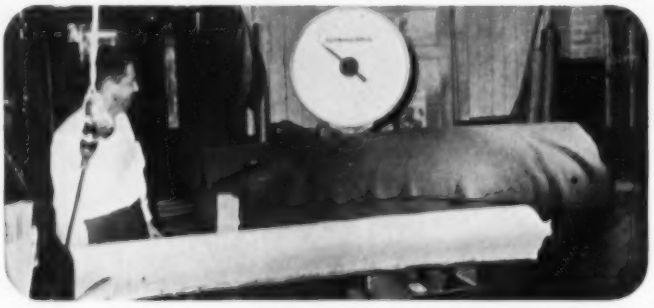
YOU CAN DEPEND ON DOW

ANY WEIGH

LAPS are weighed on this F-M textile scale that has two percentage beams to compensate for moisture content in the lap. Easily read 20" dial is graduated by 1/10 lb. to 75 lb. Printomatic records weight on single roll tape and 6" x 4" ticket.



ROVING on spools is accurately weighed by the truck load on this F-M Floaxial platform scale. It is equipped with a set of weights to tare different trucks according to the number of spools in the truck. Scale face swivels at a touch for reading at any angle.



ROLLS of cloth are weighed on this F-M textile dial scale to determine the weight per yard of finished cloth. Rugged scale mechanism stands up to repeated shock of large rolls dropping on platform. Large numerals and swivel face defy reading errors.

Laps? Roving? Rolls? Whatever your weighing problems, Fairbanks-Morse textile-wise specialists can assist you in obtaining accurate weighing operations. Write Fairbanks, Morse & Co., Dept. TI-9, 600 South Michigan Avenue, Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

SCALES • PUMPS • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS
HOME WATER SERVICE EQUIPMENT • MAGNETOS

Personal NOTES ABOUT MEN YOU KNOW

superintendent of Hatch Mill Corp. by **William Stallworth,** previously chief engineer of Excelsior Mill, Union, S. C. **Charles Kennemore,** industrial engineer at Hatch, has been chosen to fill another newly-created position, that of technical superintendent.

John I. Alford, formerly superintendent of Covington (Ga.) Mills and a former member of the faculty at the A. French School of Textile Engineering, Atlanta, Ga., has been appointed director of the new textile technology department at the Southern Technical Institute at Chamblee, Ga., which will begin operations this fall with a two-year technician-level course in textiles. He will also serve as associate professor on the textile faculty at Georgia Institute of Technology.

At Glen Raven Silk Mills, Burnsville, N. C., **Torrey M. Tyner,** formerly manager of the mills, has been named vice-president in charge of production. **Donald I. Burhoe,** previously administrative assistant, was chosen secretary.

At Golden Belt Manufacturing Co., Durham, N. C., three executives have been promoted: **C. M. Davis** from vice-president to senior vice-president; **S. B. Rasberry,** from superintendent of the bag mill and printing department to vice-president; **R. M. McFarland,** from foreman of the printing department to superintendent of the printing department.

Named to the faculty of Lowell Technological Institute as associate professor in the division of chemistry was **Dr. Joseph B. Quig** who recently retired from E. I. du Pont de Nemours & Co., Inc., as research manager of the textile fibers department. Dr. Quig, who was identified with Du Pont for 31 years, assumes his duties at Lowell Tech, with the academic year beginning in 1957.

A. H. Grant has resigned as chief development engineer of the Department of Conservation and Development, Raleigh, N. C., to accept an executive position with Morgan Cotton Mills, Laurel Hill, N. C.

Newly elected officers of the textile packaging committee of the Packaging Institute are: **James T. Covington,** Fieldcrest Mills, Spray, N. C.,

(Continued on page 54)

This set-up makes the industry's smoothest, most even warps

Notice how narrow this Kidde-Sipp warper is—anyone can reach anywhere for any operation. And the beam can be doffed, automatically, by a girl, without assistance of any kind.

it's the KIDDE-SIPP warper with accumulator and creel

The smoothest, most even warp beams available today are being turned out by Kidde-Sipp warpers . . . particularly when backed up by a Kidde-Sipp accumulator and a Kidde-Sipp Creel. Here's why:

Yarn is never scuffed on the warper because brakes on the measuring roll, compression roll, and beam are all synchronized electrically. Furthermore, yarn builds up evenly because the compression roller has 2 hydraulic cylinders, one at either end (instead of just one in the center). The balanced pressure that results gives you perfectly even build-up of yarn. And the hydraulic cylinders produce uniform cushion pressure so that the compression roller will not chatter or bounce.

The accumulator is electrically synchronized with the warper, so that, when the yarn must be backed off to recover a broken end, proper tension is maintained. And even the heaviest packages won't sag out of alignment on the versatile Kidde-Sipp Creel. New, stronger package holders and adapters are the reason. They are made of aluminum, which also puts a stop to rust rubbing off on the yarn.

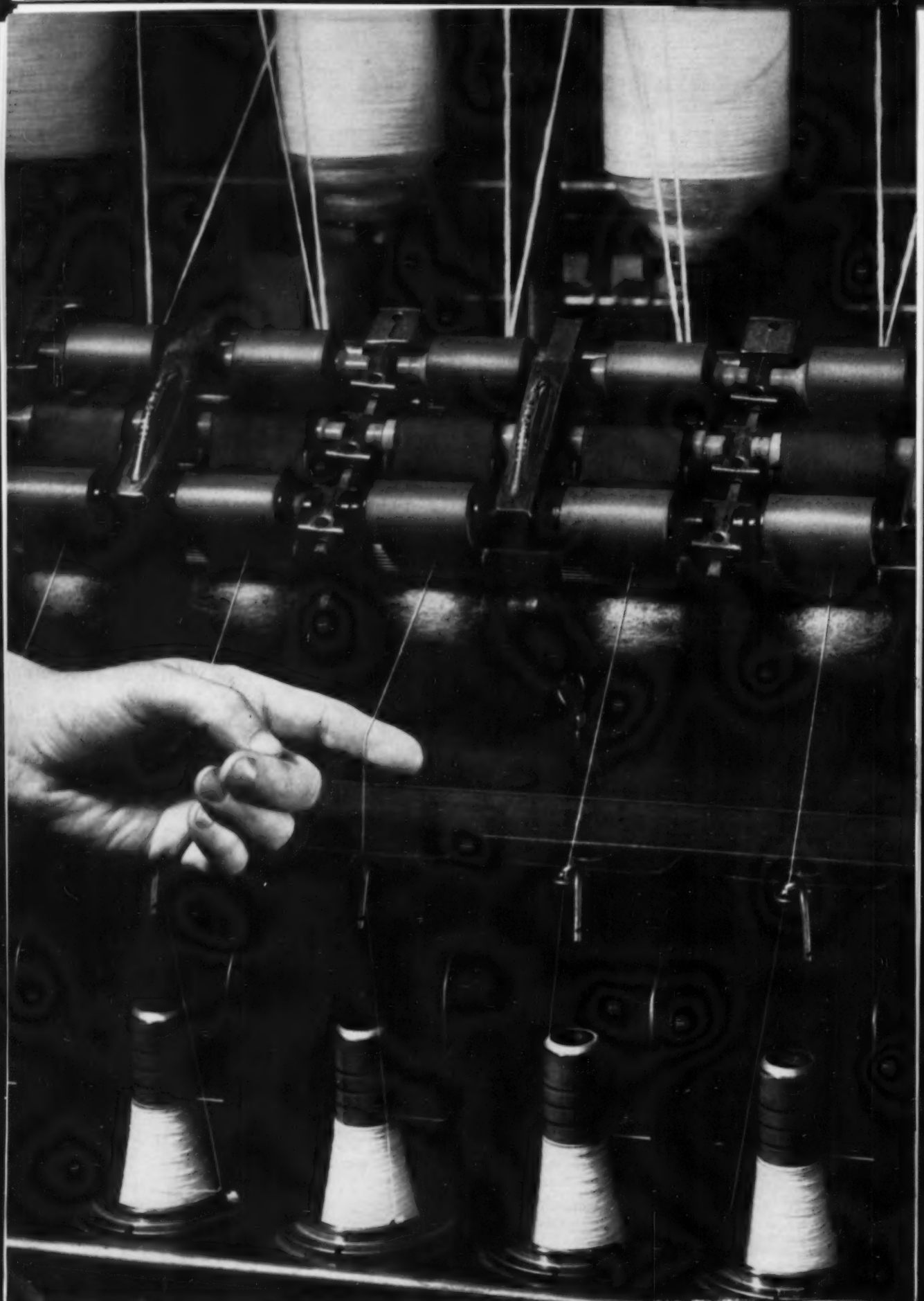
There are a lot more reasons why you get a better beam with Kidde-Sipp Warpers, Creels and accumulators. Find out more about them by writing to:

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.



Spin top-quality yarn on high-draft frames with Armstrong Accotex Aprons

The right spinning apron can make a big difference in helping you get maximum production of top-quality yarn from your high-draft equipment. That's why hundreds of mills have specified Armstrong Accotex® Aprons on all their frames.

These aprons spin strong, uniform yarn because they are engineered to the requirements of the frames on which they're to run. Take, for example, their unique frictional properties, and what they can mean to you in terms of smooth operation and high-quality production.

On double-apron systems, the outer apron surface must have relatively high friction so that the bottom apron can drive the top one without slippage and consequent loss of yarn control.

The inner apron surface must have a lower coefficient of friction so that the apron can turn around the pins without buckling; yet this surface must have sufficient friction to grip drive rolls firmly.

To give Accotex Aprons the different characteristics needed on both surfaces, Armstrong chemists developed two special synthetic rubber compounds. And both compounds are formulated to give long, dependable service.

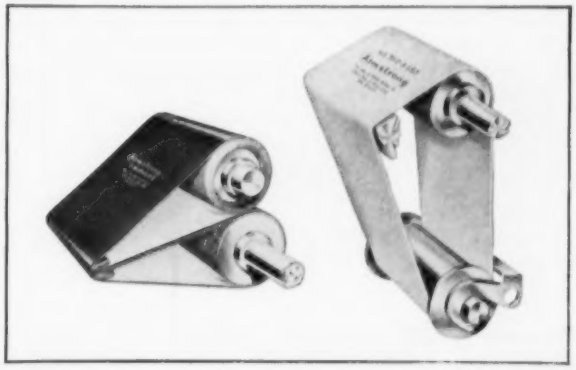
The patented construction of Accotex Aprons also contributes to their outstanding performance. A strong, straight-line cord interliner eliminates stretching and curling while maintaining the flexibility needed for smooth running.

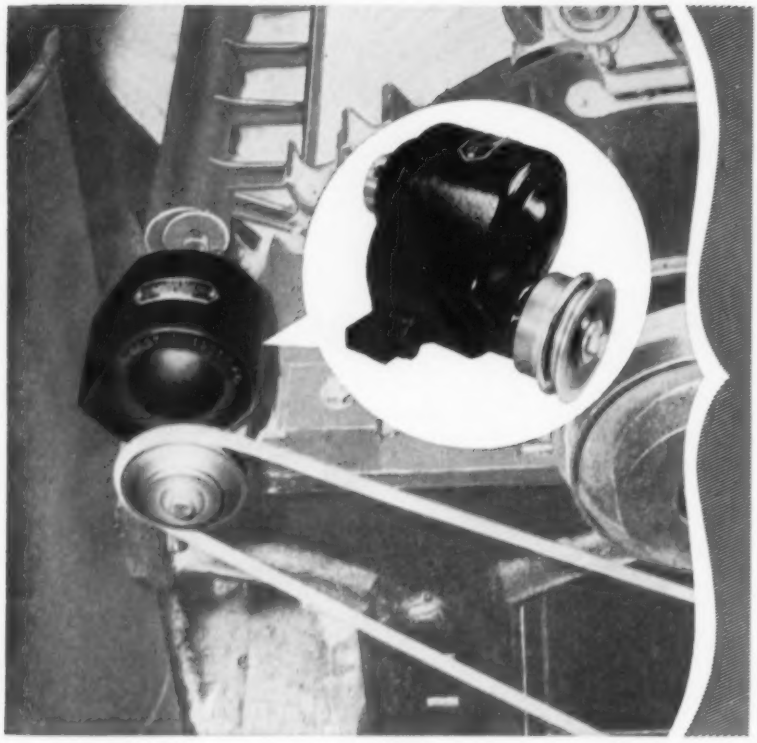
The careful rubber compounding and unique construction are backed up by modern production methods and rigid inspection and quality control. This is your assurance that the Accotex Aprons you buy will help you spin top-quality yarn, shift after shift, for years. Armstrong Cork Company, Industrial Division, 6409 Ivy St., Lancaster, Pa.

Armstrong ACCOTEX APRONS

. . . used wherever performance counts

FOR DOUBLE-APRON SPINNING, use Accotex NO-7075 Aprons. Inner surface grips drive roll firmly, yet slips over pins without jamming. For single-apron spinning, the NO-750 Apron gives the smooth drafting action needed for strong, uniform yarn.





OUTSTANDING SUPERIORITY OF SOUTHERN STATES COMB BOXES PROVED IN NATION'S MILLS

More than 30,000 Southern States Comb Boxes have been placed in service during the past 7 years—equal to 35% of all the nation's cotton cards. Many mills have changed over 100%.

This overwhelming acceptance proves conclusively that mills can easily justify the small investment. Cardroom overseers quickly recognize the savings that result from their use: no oiling, cleaning or maintenance for the life of the unit; steady, even strokes to drive the comb with perfection; elimination of hot-running, leaky, rattling old-style boxes and their headaches.

Southern States Comb Boxes are furnished complete with an adjuster base for mounting on any make of cotton card. Bases are double tapped to permit rapid mounting on either right or left hand cards. Installation is quick and easy.

Let us show you with facts and figures how it has paid hundreds of mills to install Southern States ball-bearing, sealed-for-life, Comb Boxes; prove how much they will save you in one year. Write direct for a representative to call at your convenience.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

Personal NOTES ABOUT MEN YOU KNOW

(Continued from page 50)

chairman; **Thomas R. Williams,** Riegel Textile Corp., Ware Shoals, S. C., vice-chairman; and **Walter L. Mason, Jr.,** Burlington Industries, secretary.

Morey Kaplan has been appointed to the faculty of the Philadelphia Textile Institute, as an instructor in the chemistry and dyeing and research departments. Professor Kaplan was the recipient of a B. S. degree in chemistry and dyeing from PTI in 1957.

At Roanoke (Va.) Mills, **Rupert M. Cassell** has been promoted from plant superintendent to assistant general manager.

New members of the board of governors of Southern Textile Association are: **Troy Carter,** Woodside Mills, Greenville, S. C.; **J. T. Chalmers,** M. Lowenstein Co., Anderson, S. C.; **Joe Gilbert,** Hart Mills, Tarboro, N. C.; **Nelson Kessel,** Hanes (N. C.) Knitting Co.; **Rodger Hughes,** Reeves Brothers, Spartanburg, S. C.; **Carter Henry,** J. P. Stevens & Co., Inc., Greenville, S. C.; **Joe Inscoe,** Carolina Mills, Maiden, N. C.; and **Jesse Boyce,** Erwin Mills, Durham, N. C. Officers of the associate members division are: **George Batchelor,** Odell Mill Supply Co., Greensboro, N. C., council chairman; **Charles Switzer,** Keever Starch Co., Greenville, S. C., division chairman; **Junius Smith,** Charlotte, N. C., secretary; **Richard Dunn,** Whitin Machine Works, Spartanburg, S. C., vice-chairman; and the following councilmen: **Frank Barrie,** Universal Winding Co., Charlotte, N. C.; **Haines Gregg,** Carter Traveler Co., Gastonia, N. C.; **Glenn Fisher,** Fisher Mfg. Co., Hartwell, Ga.; **Carl Chalmers,** Texize Chemicals, Greenville, S. C.; and **A. E. Johnston,** Ashworth Brothers, Greenville, S. C.

J. P. Stevens & Co., Inc., has announced the appointment of **George W. Ewald** as manager of industrial synthetic fabrics sales, which covers all synthetic fibers with the exception of fiber glass. The industrial fiber glass sales department will continue under the managership of **John Schwebel.** Mr. Ewald was formerly with the Celanese Corp. of America as manager of the industrial sales department. * * * **Flay E. Alexander** is now superintendent of the Whitmire,

S. C., plant, succeeding **J. J. Frier** who retired upon completion of 25 years of service at Whitmire. * * * **Henry Grady Rollins** has retired, and his position as general manager of three North Carolina plants has been filled by **J. Dow Sheppard.** Mr. Rollins will continue to reside in Shelby, N. C.

John W. Riggenbach, formerly manager of the Fall River, Mass., plant of Velveray Corp., is now president and treasurer of the newly formed screen printing plant, known as Bristol (R. I.) Textile Printers, Inc.

C. M. Whitcher has resigned as plant superintendent at Bay Mills, Midland, Ontario, Canada, and plans a six-month holiday.

OBITUARIES

Joseph L. Bridger, 61, president and director of Bladenboro (N. C.) Cotton Mills.

Malon C. Courts, 49, managing partner in Courts & Co., Atlanta, Ga.

Kay Dixon, 73, former treasurer of Trenton Cotton Mills, Gastonia, N. C.

Saul F. Dribben, 77, retired president and chairman of the board of Cone Mills, Inc., New York, N. Y.

Ernest A. Gunther, 42, in charge of the northern industrial engineering department of Bachmann Uxbridge Worsted Corp., Uxbridge, Mass.

E. Alan Larter, 53, founder and treasurer of Wannalancit Textile Co., Lowell, Mass.

Nathan A. Long, secretary and treasurer of Long Finishing Mills, Inc., at Burlington, N. C.

Henry M. McAden, 85, former president of McAden Mills, McAdenville, N. C., prior to sale of the mills to Stowe Mills, Inc., Belmont, N. C.

Franklin W. Marberger, 41, office manager of the Penn-Maid Hosiery Mills, Inc., Reading, Pa.

Elmer C. Mowry, 62, secretary-treasurer of Stillwater Worsted Mills, Harrisville, R. I.

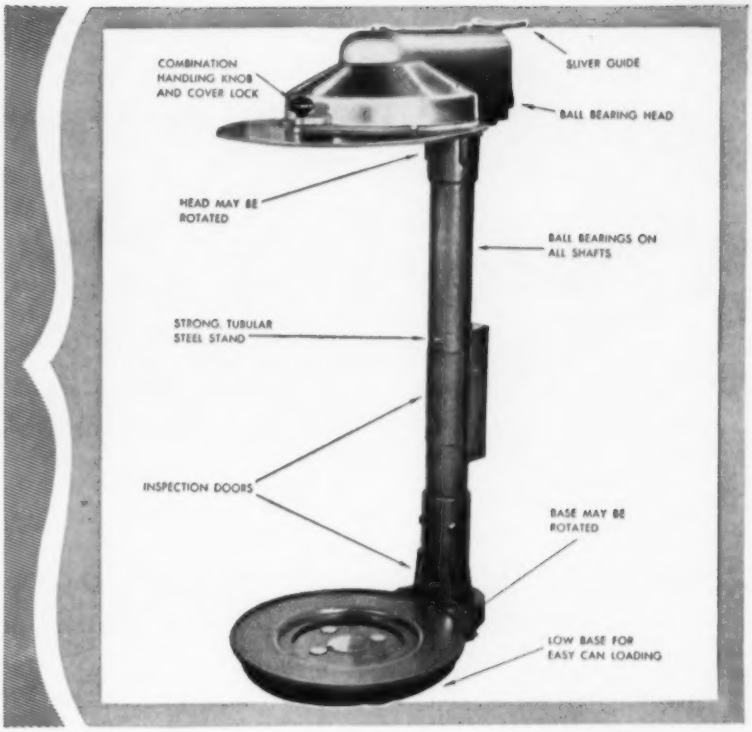
John C. Rayle, secretary of Vuncannon Hosiery Mills, Inc., Asheboro, N. C.

Alvah H. Rogers, 88, a founder, former president, and a director of Kingsboro Mills, Inc., Chattanooga, Tenn.

Irving Solomon, 63, retired president of Milford Knitted Sportswear, New York, N. Y.

Edgar F. Wagner, 69, secretary and treasurer of Crown Knitting Mills, Inc., Mohrsville, Pa.

B. C. Wilson, former secretary and assistant treasurer of Calhoun Mills, Calhoun Falls, S. C.


COMBINATION HANDLING KNOB AND COVER LOCK
SLIVER GUIDE
BALL BEARING HEAD
HEAD MAY BE ROTATED
BALL BEARINGS ON ALL SHAFTS
STRONG TUBULAR STEEL STAND
INSPECTION DOORS
BASE MAY BE ROTATED
LOW BASE FOR EASY CAN LOADING

SOUTHERN STATES NOW OFFERS ITS VASTLY IMPROVED COILERS IN ALL SIZES UP TO 20 INCHES

The greatly improved line of Southern States Complete Coilers and Conversion Units has been expanded to include 16, 18, and 20-inch sizes. Now, no matter what can diameter, or can height, suits your operation best, you can have all of the advantages offered by this premium-quality coiler.

These streamlined, compact coilers are designed for direct attachment to any make of cotton card, left or right hand. Installation is rapid and economical.

Every engineering and operating feature desired by mill men has been included in the Southern States coilers:

Cut tooth gears throughout; self-aligning pillow blocks on upright shaft and on calender roll shaft; precision-ground cast iron calender rolls; fully adjustable can table; and quickly detached coil spring roll-loading device.

Nothing has been spared to provide mills with the finest coilers that will operate at peak efficiency, require a minimum of maintenance, and give years of trouble-free service.

Get the facts from your Southern States representative, or write for Bulletin 203-a.

SS

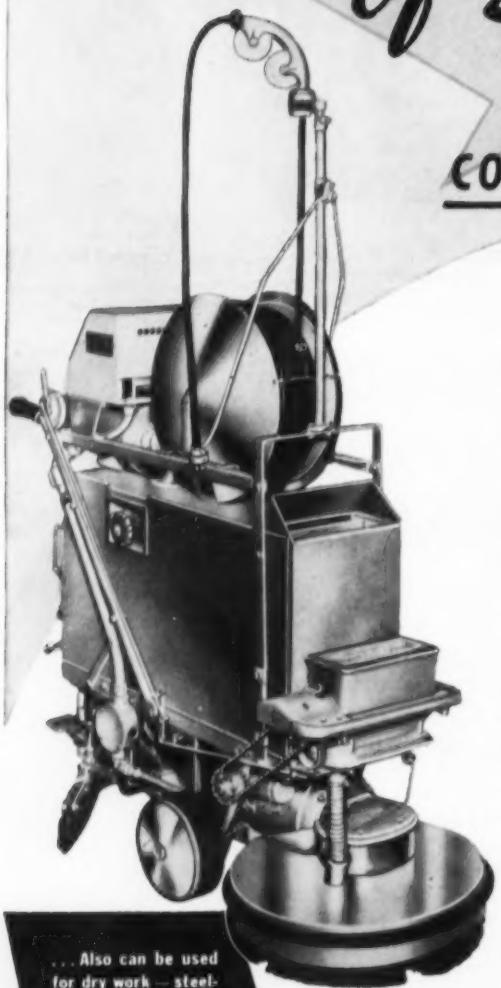
SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

SMALL-AREA BUILDINGS...

Save 2/3 of Every Hour of Scrubbing Time

WITH A

COMBINATION SCRUBBER-VAC!



...Also can be used for dry work — steel-wooling, et cetera

(Powder Dispenser is an accessory)

Today, even buildings with but 2,000 to 15,000 sq. ft. of floor space can reap the labor-saving, cost-reducing benefits of *combination-machine-scrubbing*. Here's a *Combination Scrubber-Vac, Finnell's 418P* at left, that's specially designed for such buildings. This *electric* unit, with its 18-inch brush spread, cleans floors in *approximately one-third the time* required with a conventional 18-inch machine and separate vac.

The *418P* applies the cleanser, scrubs, and picks up (damp-dries the floor)—*all in one operation!* Maintenance men like the convenience of working with this single unit... the thoroughness with which it cleans... and the features that make the machine simple to operate. It's *self-propelled,* and has a *positive* clutch. There are no switches to set for *fast* or *slow*— slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Compactly built, the *418P* also serves advantageously in larger buildings for the care of floors in narrow aisles and congested areas, and is available on lease or purchase plan.

Finnell makes *Scrubber-Vac Machines* for small, vast, and intermediate operations, and in *gasoline* or *propane powered* as well as *electric* models. From this complete line, you can choose the size and model that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that *a Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of the machine and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1309 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

THE NEWEST & BEST

GWALTNEY SPINNING *by* SACO-LOWELL

Creating new standards of production in over 85 profit minded, cost conscious mills

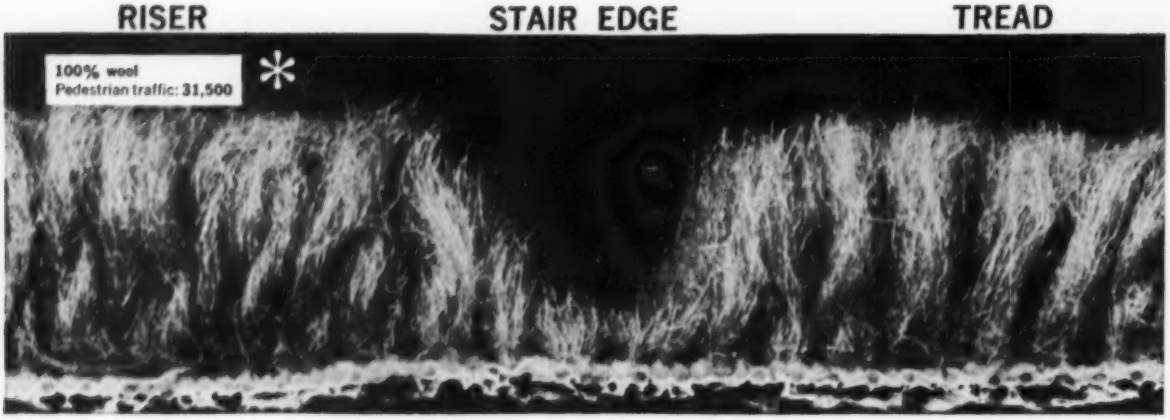
Gwaltney Spinning Frames have demonstrated beyond doubt, through their outstanding performance, that they produce stronger, far more even yarns, of higher grade than the same count yarn produced from the same stock by "yesterday's" spinning. . . . This noticeable improvement in quality has occurred with lower operating costs and increased production. All result in higher profits.

Why wait . . . join the trend toward Gwaltney. A Saco-Lowell Engineer will gladly prepare a **"Forecast of Savings"** based on a **Saco-Lowellizing Program** which includes Gwaltney Spinning for your mill.

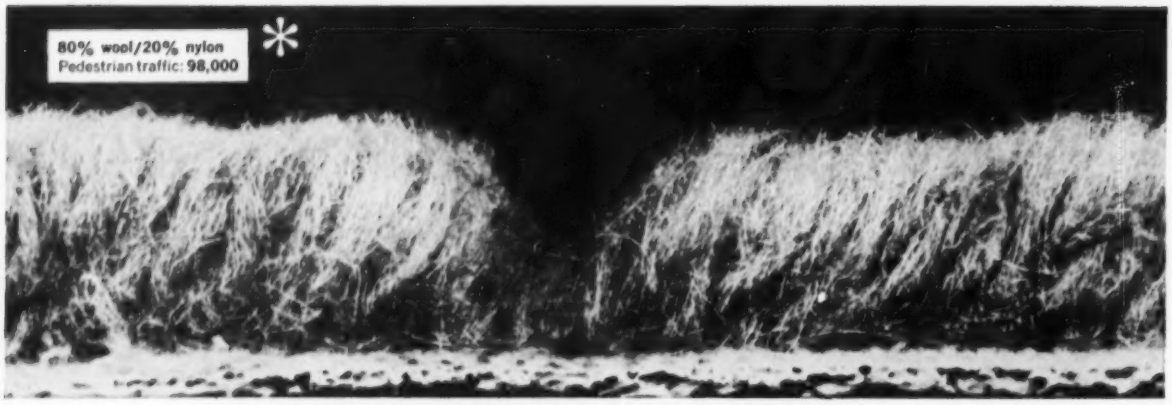
SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

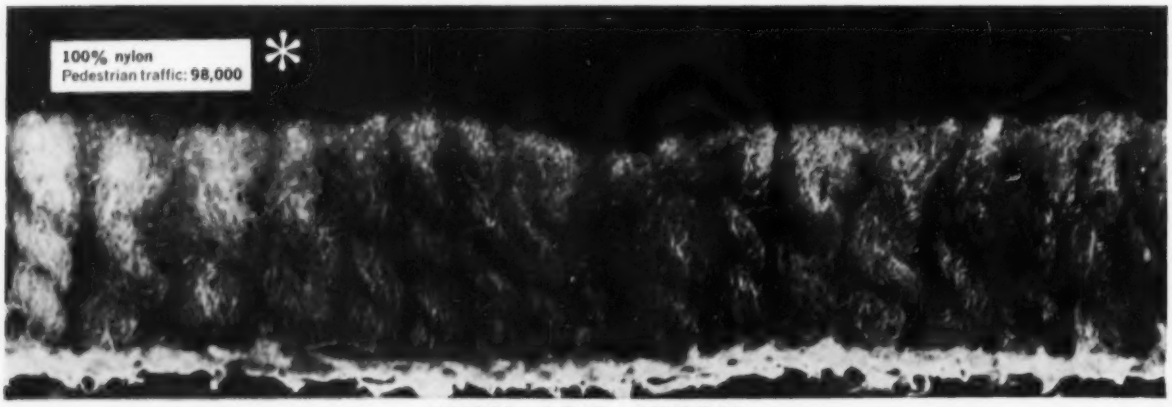
Shops at BIDDEFORD & SACO, MAINE, SANFORD, N.C., EASLEY, S.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA



100% WOOL



80% WOOL/20% I.R.C. NYLON



100% I.R.C. NYLON

* Note that the 100% wool strip wore out almost completely with but one third the pedestrian traffic of the other two strips.

in carpeting, nothing adds wear like NYLON!

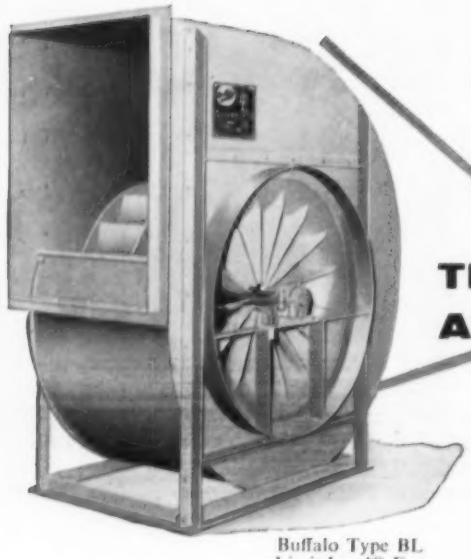
How does it wear? That's one of the most important questions consumers ask about carpeting. Permanent textures, higher recovery from crush, excellent resistance to matting, and greater resiliency are other important performance characteristics consumers want to know about. Nylon has them *all*, and they've been proved not only in the laboratory, but in *actual wear tests, too!* Flame-resistance? Nylon does not support flame. *No other fiber adds durability to floor covering like nylon!* The toughest possible traffic test proves . . . The Higher The Nylon Content—THE LONGER THE WEAR!

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Office: 500 Fifth Avenue, New York 36, New York · 627 Guilford Building, Greensboro, North Carolina

wear... Nylon outwears wool and every other carpeting fiber known. In this test, identical*, unpadded strips of carpeting were laid on bare, rough steps in an industrial plant. Strips were rotated regularly. 100% wool broke down at 31,500 pedestrian traffic mark. 80% wool/20% nylon was still useable after 98,000 pedestrians. At same 98,000 mark, 100% nylon shows virtually no wear.

*strips of carpeting were identical except for fiber content.



Buffalo Type BL
Limit-Load® Fan

THE "INSTALL-IT AND-FORGET-IT-FAN"

FOR INDUSTRIAL AIR-MOVING

With the "Buffalo" Type "BL" Fan, you're assured of dependable, economical, long lasting air-moving service for **your** particular air conditioning, ventilating or other industrial application. Here's why:

LONG, TROUBLE-FREE LIFE: because "Buffalo" gives you heavy gauge construction, rigid bracing, oversize self-aligning bearings, and a wheel which is die stamped, riveted and welded.

FULL RATED DELIVERY ON THE JOB: is insured by the proven backward-curved blade wheel, die-formed fixed inlet vanes, and wheel-suited housing.

QUIET OPERATION: made possible by complete streamlining from inlet to outlet plus precision balance of the wheel.

EASY INSTALLATION: on sturdy base, due to ample inlet and outlet collars. Larger sizes have split housings for convenient handling during installations.

Every "Buffalo" Fan is test-run before it leaves our shop. This assures you of peak efficiency . . . smooth, quiet operation . . . and a long life of completely reliable service. Want Full Details on "Buffalo" Type "BL" Fans? Just write us, now, for Bulletin F-102.

. . . that is, forget your "Buffalo" Type "BL" Fan as far as any day-to-day attention is concerned. It'll do its superb job, month-after-month, year-after-year, with no servicing other than routine maintenance. You can rely on the famous "Buffalo" "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.

BUFFALO FORGE COMPANY
BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING

Non-woven fabrics

are BETTER 4-WAYS

made on

RANDO-FEEDER®

and

RANDO-WEBBER®

BETTER Equipment

No carding, garnetting or lapping equipment is required to form the RANDO-WEB. Only one pair of machines—RANDO-FEEDER and RANDO-WEBBER—is needed to make non-oriented webs. These efficient, low-maintenance machines are shipped assembled in 40", 60" and 84" widths.

BETTER Production Time

The versatile RANDO-FEEDER and RANDO-WEBBER produce webs of desired thickness. Production range (40" machine) is from approximately 30 to over 300 pounds per hour. Finished webs can be wet or dry bonded, dyed or printed like woven goods.

BETTER and Wider Range of Engineered Fabrics

A wide variety of fibers, natural and synthetic, blends, and waste, can be made into a RANDO-WEB. It is remarkable what uniform webs, lengthwise and crosswise, these machines make using staple fibers, processing and recovered wastes.

BETTER Finished Products

The RANDO-WEBS produced are suitable for further processing into felts, waddings, heavy mats and engineered non-woven fabrics. Fabrics, filters, surgical goods, wiping cloths and many other products are now being commercially produced.

WRITE Complete details in new Bulletin No. 105.

EXPORT REPRESENTATIVE:
Lendt & Company, 535 Fifth Ave., New York 17, N. Y.

SOUTHERN REPRESENTATIVE:
Parrott & Ballentine
510 South Carolina, National Bank Bldg., Greenville, S. C.

TEXTILE DIVISION

CURLATOR®

CORPORATION

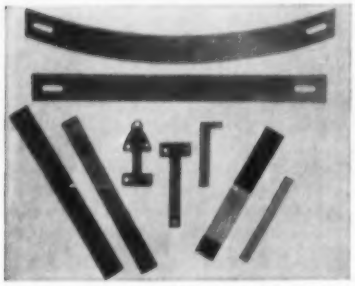
EAST ROCHESTER, NEW YORK

GARLAND MFG. 91st YEAR

Garland Manufacturing Company, Saco, Maine has been manufacturing rawhide products for the textile industry since 1866. H. P. Garland, founder of the company, was the author of a text on the water buffalo and rawhide applications in the textile industry which is used as a standard reference source on the subject. The company buys choice water buffalo hides from Java, Burma and other Far East sources. These hides are cured for the Garland concern in England. The rawhide is further processed in Maine and famous Garland Pickers and other rawhide products are manufactured for textile users.

NEW LINE OF LEATHER PRODUCTS

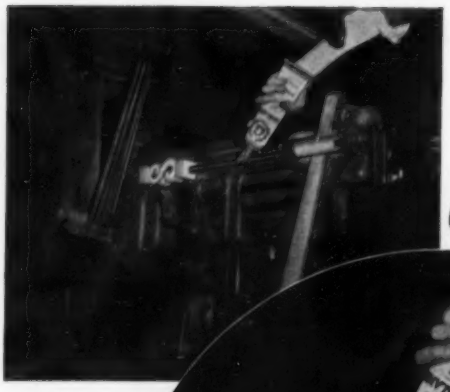
A need of the mills for superior leather products of uniform quality has prompted Garland Mfg. Company to produce check straps and by-products, such as picker checks, hold up straps, etc., of the finest imported hair-on leather as well as binder leather from the best oak tanned leather available.



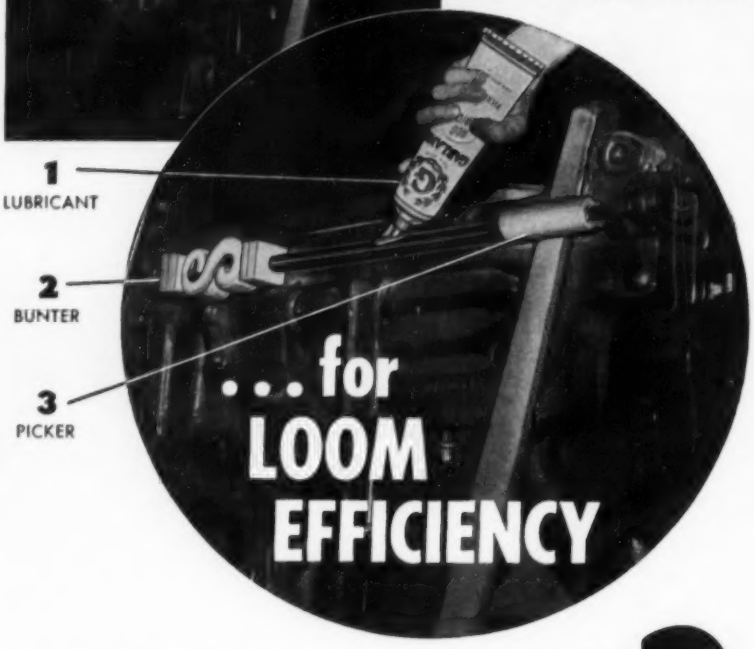
In many cases, it has been found that these superior products, because of Garland's production methods, are selling at prices lower than inferior grades.

REINFORCED LOOM PICKER

Research based on a survey of mills has enabled the Garland Manufacturing Company to produce a picker that far out-lives previous types. The new loom picker has a reinforced stick hole that corrects a basic weak point of pickers generally . . . provides much longer service. Likewise the spindle hole has been improved and strengthened by locked-in flanges at both ends. The picker head has been strengthened by a heavier outside layer of rawhide, eliminating the need for a rivet through the picker head. Mills using the reinforced loom picker have reported much longer life of the picker with resultant savings.



ALL 3 GO TOGETHER



GO TO GARLAND FOR ALL 3

It's a more efficient loom with Garland's rod lubricant, sponge leather bunter and rawhide picker! Here's why:

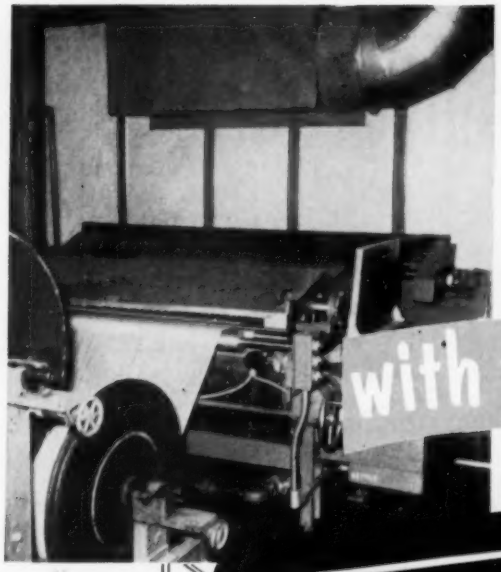
1. ***GARLAND ROD LUBRICANT AND APPLICATOR*** – Overcomes disadvantages of old-fashioned methods. Lubricant's tacky substance clings to rod. Eliminates oil drip, regular grease pile-up, overheating, excessive friction, frequent loom stoppage. Applicator fits all size rods. Squeeze of tube spreads uniform thin film of grease.
2. ***GARLAND SPONGE LEATHER BUNTER*** – Exclusive genuine sponge leather "takes" shock better. Long life assures economical operation. "Proved" through wide industry use. Now available in unlimited quantities for the first time.
3. ***GARLAND GENUINE RAWHIDE LOOM PICKER*** – Reinforced stick hole for longer service. Heavier, stronger picker head . . . pressure molded . . . improved spindle hole . . . water Buffalo hide — toughest material available, anywhere.

WRITE TODAY FOR FREE INFORMATION ABOUT GARLAND PRODUCTS FOR GREATER LOOM EFFICIENCY

Garland MANUFACTURING CO.

Manufacturers of RAWHIDE LOOM PICKERS • SPONGE LEATHER BUNTERS • RAWHIDE HAMMERS AND MALLETS

54 WATER STREET • SACO • MAINE



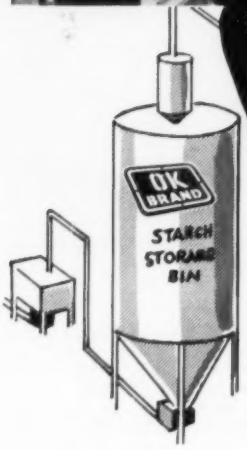
improve your sizing, printing, finishing . . .

with the Greatest of Ease

with

OK BRAND

STARCHES and GUMS



There's a complete line of superior, quality controlled, OK BRAND textile starches and gums to help you get improved finishing, printing and sizing, reduce your costs, and assure you of consistent quality in your production.

You can enjoy all these benefits with the greatest of ease because better, more convenient systems for handling starches and gums have been developed by Hubinger textile experts. One of these trained, experienced textile technicians is near-by, prepared to help with any *special problems* you may have, too. For prompt attention to your needs without obligation, write, wire or phone:

IRA L. GRIFFIN & SONS
P. O. Box 10474
Charlotte, N. C.
(Phone: Franklin 6-5583)

CARL F. MERRITT
Box 346-A
Piedmont, S. C.
(Phone: Greenville 2-0424)

JOE R. MYERS
1817 Dell Drive
Columbus, Georgia
(Phone: Fairfax 7-2244)

BOSTON OFFICE
192 State Street
Boston, Mass.
(Phone: Capitol 7-3268)

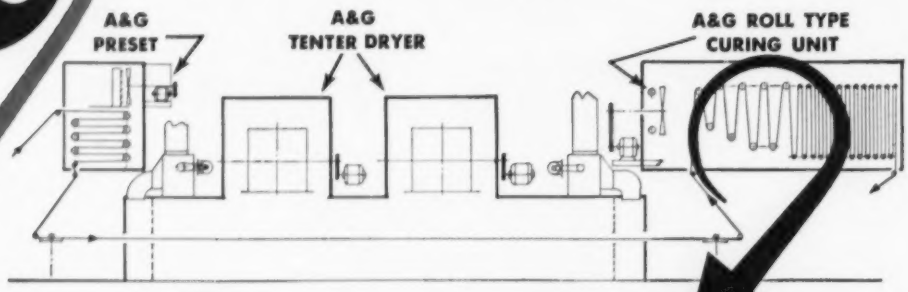
NEW YORK OFFICE
500 Fifth Avenue
New York 36, New York
(Phone: Longacre 5-4343)

The Hubinger Company

KEOKUK, IOWA

HUBINGER 76 YEARS

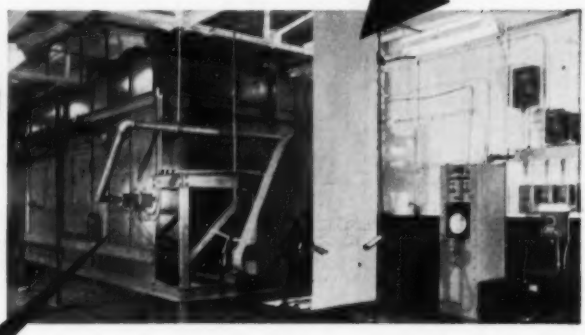
The A&G Resin Finishing Range

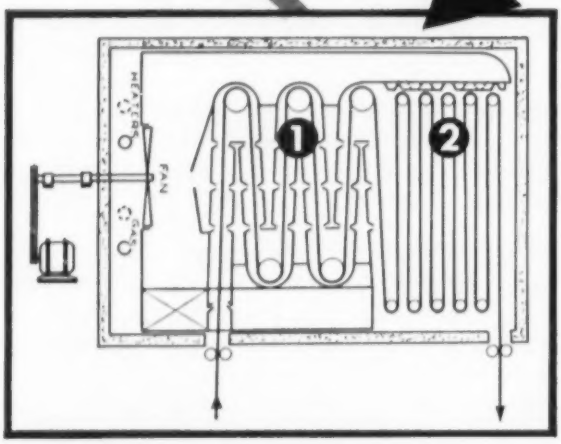


AN EVEN CURE

A SUPERIOR HAND

WRINKLE FREE





Study this A&G CURING UNIT. Note the dual zoning.

1. *Heat Up* Zone where the goods are brought up to the curing temperature quickly yet evenly. The resulting hand is superior. The cloth is in the A&G Curing Unit a shorter time, resulting in a superior hand and minimizing losses in tensile strength.

2. *Hold* Zone where the goods are subjected to the proper curing temperature for the proper length of time. Uniform temperature with maximum cloth capacity results in effective curing combined with maximum yardage per minute.

The A&G Free-Wheeling Drive eliminates wrinkle problems and minimizes width loss with trouble-free pneumatic or mechanical clutches on all top rolls.

The A&G Resin Curing Unit has made an outstanding record in many mills, both as part of the complete A&G Finishing Range and as individual units. Its efficiency and productive capacity are so outstanding that you should consider it strongly for your *next* installation . . . as a modernization unit or for your expansion program.

A&G Units Include: Tenter Dryers, Predryers, Dye Range Dryers, Skein Dryers, Loop Dryers, Warp Dryers, Stock Dryers, Resin Curing Units, Cloth Conditioners, Carpet Dryers.

THE ROSS GROUP
OF COMPLEMENTING SERVICES

J. O. Ross Engineering Corporation, New York
Andrews and Goodrich Division, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton Corporation, Dayton
Carrier-Ross Engineering Company, Ltd., England
John Waldron Corporation, New Brunswick, N. J.

ANDREWS & GOODRICH DIVISION

336 Adams Street BOSTON (Dorchester), MASS.
J. O. ROSS ENGINEERING CORP., NEW YORK, N. Y.
Southern Representatives: McSpadden & Scantland, Charlotte, N. C.

SPEED: 12,500 rpm PROBLEMS: none

Quill winding spuns with KIDDE compensators

For 2 years, these winders have operated at 12,500 rpm with the help of new Kidde double disc compensators, specifically designed for use on spuns and natural fiber yarns. At top efficiency, they've turned out the kind of quills that give top loom performance. There are 5 reasons why these Kidde Compensators give such outstanding performance.

1. You get maximum density control with Kidde Compensators, cutting down on quill changes and assuring uniform quill size as well.
2. There is never any build-up of lint because Kidde Compensators are entirely self-cleaning.
3. Tension is automatically maintained at designed strength of yarn.
4. Kidde Compensators assure absolutely uniform quill diameters.
5. Positive tension control is maintained without any abrasion.

Can you afford to do without these "constant watchmen" over your winding process?

For full information, write to:

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde

MANUFACTURING CO., INC. – 42 FARRAND STREET – BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE – 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

New Wyandotte chart helps you choose between 50% and 74% caustic soda

Like to make a definite decision whether or not switching from 50% to 74% caustic soda would be profitable for your business?

To make this task easier for you, Wyandotte has devised a unique chart which helps you plot your economic position, and shows you whether switching from 50% to 74% liquid-caustic solutions can benefit you in your operations.

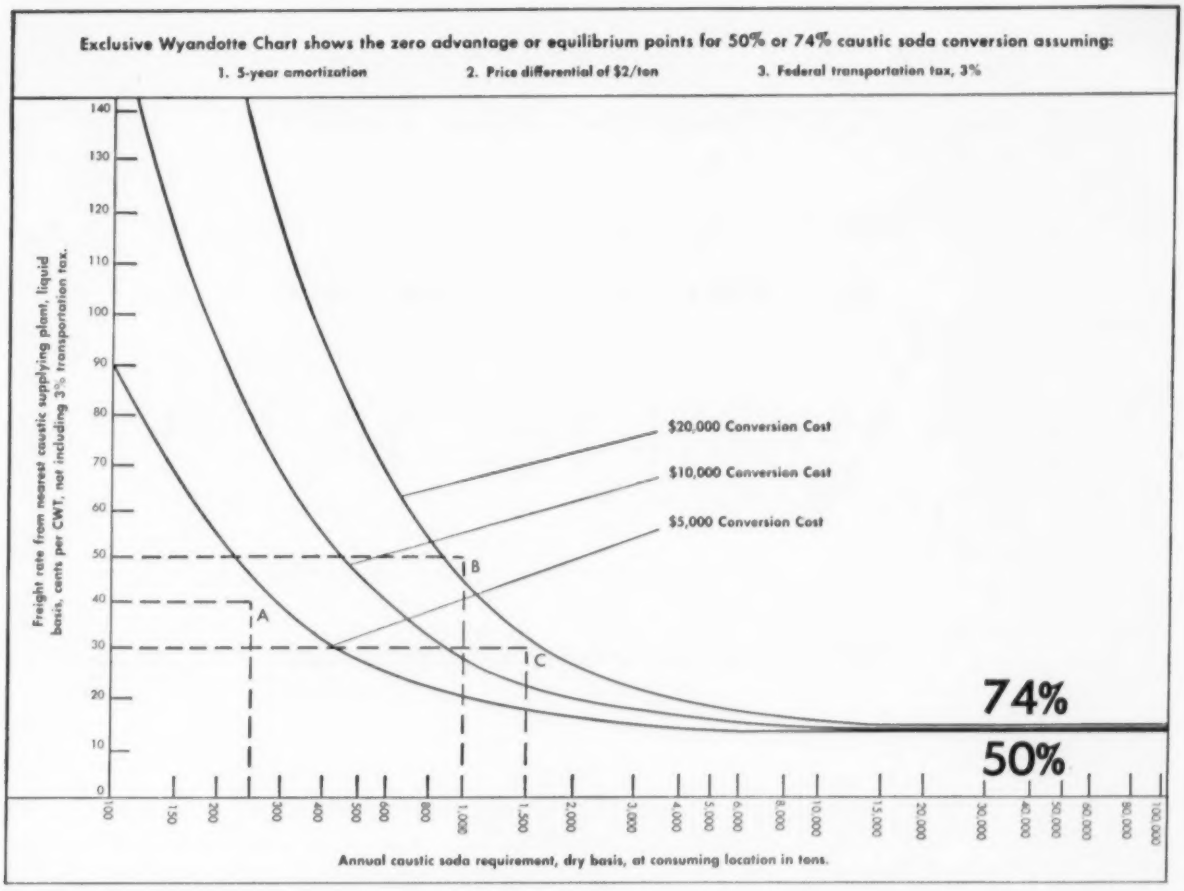
Wyandotte's caustic liquor is loaded while hot. This heat, plus heavy insulation, insures users against solidification.

In choosing, there are many variable factors which you must consider: the cost of concentration; end use of the caustic soda; existing storage and handling facilities; quantity of caustic consumed; plant location.

While there are definite freight savings to be realized from using 74% caustic (less water must be shipped), if the final use of the caustic requires a dilute solution, equipment must be provided to dilute the tank car of 74% liquor. And since the dilution operation results in approximately 70% more total liquid, additional storage space may be needed.

A survey of your operations will reveal the possible savings that may be made by switching to 74% liquid caustic. Even though you may have surveyed operations previously, increased use of caustic or changes in freight rates may well mean you can save money now by switching to 74% liquor . . . it is wise to plan periodic surveys of your caustic requirements.

Our technical service representatives are experienced in solving problems concerning the type of caustic soda to be used, and will gladly aid you in making the necessary economic studies. For further information and help in choosing which is best for your business, get in touch with us today. *Wyandotte Chemicals Corporation, Dept. 565-T, Wyandotte, Michigan. Offices in principal cities.*



HOW TO USE CHART

EXAMPLE A: Freight from nearest producing point to consuming point is 40 cents per hundredweight. Annual consumption by consuming plant is 250 tons caustic soda, dry basis.

ANSWER: Because Point A lies to the left of the curves, the plant should purchase caustic soda as a 50% liquid.

EXAMPLE B: Freight from nearest producing point to consuming point is 50 cents per hundredweight. Annual consumption by consuming plant is 1000 tons caustic soda, dry basis.

ANSWER: Because Point B lies to the right of the curves, the plant should purchase caustic soda as a 74% liquid, even though additional equipment investment of as much as $20,000 might be found necessary.

EXAMPLE C: Freight from nearest producing point to consuming point is 30 cents per hundredweight. Annual consumption by consuming plant is 1500 tons caustic soda, dry basis.

ANSWER: Because Point C lies between the $10,000 curve and the $20,000 curve, the plant should purchase 50% caustic soda if the additional investment necessary exceeds about $15,000, or should purchase 74% caustic soda if the additional investment is less than about $15,000.

NOTE: The amount of additional investment needed is based primarily on how much of the following items are presently part of the caustic soda unloading, storage and handling facilities at the consuming plant:

1. Storage capacity: A 10,000-gal. tank car of 74% caustic soda produces about 17,000 gals. of 50% liquor.
2. Dilution facilities: Water pump, caustic-soda pump, line-temperature gauges necessary to dilute 74% to 50%.
3. Cooling facilities: The hot 50% caustic soda must be cooled to about 110°F.-120°F. prior to storing the 50%.
4. Contamination: Some consuming plants would need protective linings or materials in the equipment to prevent contamination; thus, all-nickel equipment might be needed in some cases.

Wyandotte CHEMICALS

MICHIGAN ALKALI DIVISION

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CHLORINE • MURIATIC ACID
CALCIUM CARBONATE • CALCIUM CHLORIDE • GLYCOLS • CHLORINATED SOLVENTS
SYNTHETIC DETERGENTS • OTHER ORGANIC AND INORGANIC CHEMICALS

They look better...sell better!

Upholstery and Drapery Fabrics

touched with the luxury of glittering

FAIRTEX® YARNS

Metallized Mylar* • Metallic • Supported Metallic

... for **lustre that lives** for the life of the fabric!

Fairtex with Foil or Metallized Mylar* or Fairtex Butyrate Metallic yarns woven into your upholstery and drapery fabrics add the luxury look! They look better and sell better because the vibrant beauty of Fairtex Metallics stops the eye and starts the sale! Fairtex Yarns are non-tarnishing and can be safely washed, dry-cleaned or scoured. As "soft-as-silk" to the touch, they are smooth, pliable and uniform and do not flake or break. Fairtex Yarns never lose their glittering glamour and outlast even the fabric itself!

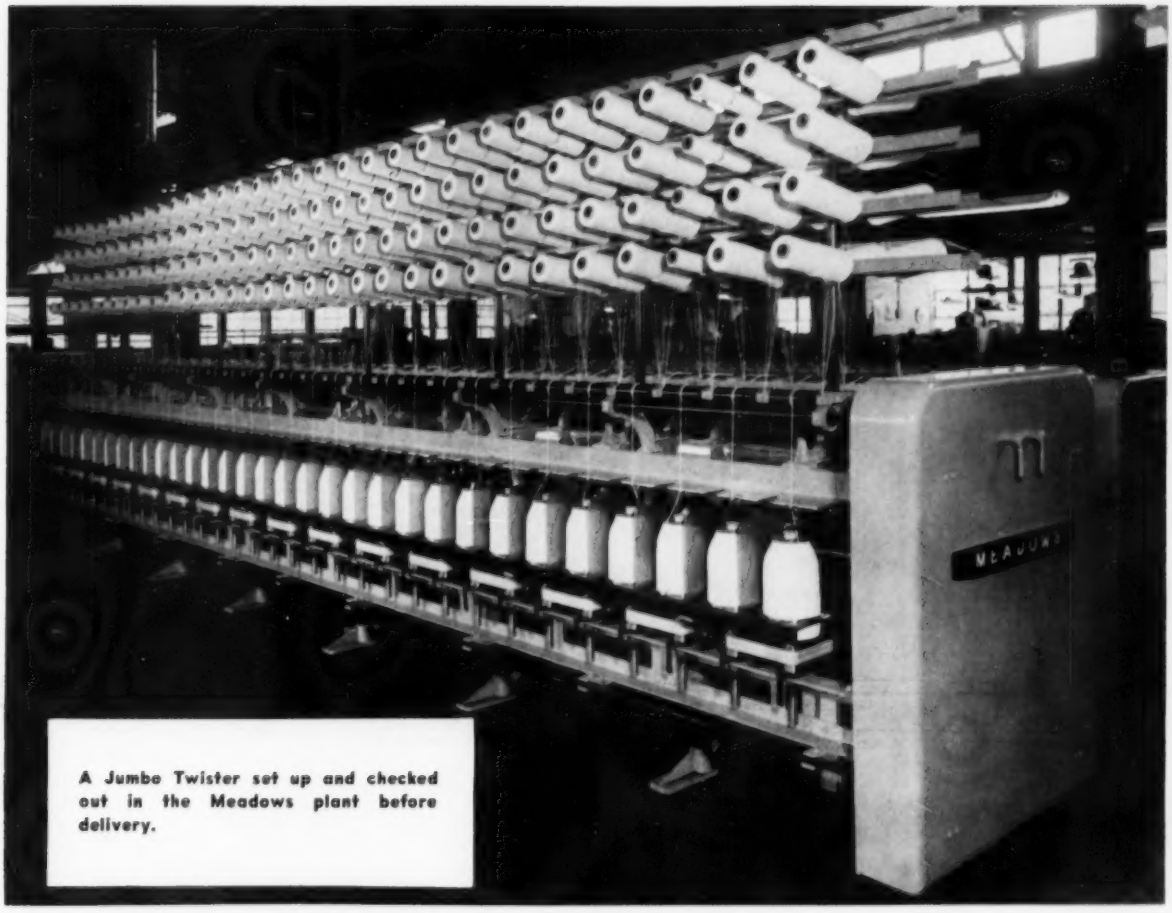
FAIRTEX® YARNS

Metallized Mylar* • Metallic • Supported Metallic

*Registered Trademark for Dupont's Polyester Film

FAIRTEX CORPORATION — CHARLOTTE, N. C.

CHICAGO: William Napier, 3555 Peterson Avenue
NEW YORK: Robert Napier, 51 E. 42nd. Street
CHARLOTTE: Lanier Branson, Jr., and J.E. MacDougall, Jr., 1808 Liberty Life Bldg.
PHILADELPHIA: William A. Papp & Associates, 3701 N. Broad Street 2678



A Jumbo Twister set up and checked out in the Meadows plant before delivery.

A completely new, completely **ANTI-FRICTION**

JUMBO TWISTER by MEADOWS

This twister has a 10" gauge; 8" diameter ring; carries a bobbin 14" overall, 12" build. This means a 9 lb. package of knotless yarn on numbers as coarse as 8/8.

It is as completely anti-friction as a frame can be made. All gear-end studs and roll stands are ball-bearing. Individual drive pulleys and shafting are ball-bearing mounted. Double ball-bearing tension pulleys make reversing easy. Lifter rod bushings have been eliminated, replaced with anti-friction rollers. Even the builder motion is anti-friction.

It is a sturdy frame—of steel construction: base rails, roller beams, ring-rails, head and foot ends, doors . . . all are steel.

Our twister frames will run bobbins from 10 to 15 inches. They can be operated at higher speeds than any competitive twister. We can supply twisters from the smallest to the largest in gauge and ring.

If you have twisting problems, please contact us.

MEADOWS MANUFACTURING COMPANY
ATLANTA, GA.

SERVICE THAT SATISFIES

Satisfied Customers are our Best Advertisement

FROM OUR REPS

U. S. field men are in a position to bring a wealth of experience and information into focus on a specific traveler application you may be "fighting". U. S. reps listen attentively, recommend intelligently and follow through energetically —

To help solve your traveler problems.

FROM OUR STOCKS

From large stocks at Providence and Greenville, our normal procedure is immediate shipment in full; or in any case enough to keep you going without interruption. Once familiar with your needs, we anticipate your requirements so that —

Your orders can be shipped consistently from stock.

U. S. RING TRAVELER CO., 159 Aborn St., Providence, R. I.

Southern Warehouse: 1443 Augusta Road, Greenville, S. C.

A Style and Size for Every Yarn and Fibre

U. S. REPRESENTATIVES ARE AT YOUR SERVICE

R. V. BORDEN, W. H. ROSE, Greenville, S. C., Box 1048 • Phone 3-0915

H. J. SMITH, Providence, Box 1187 • GAspee 1-0100

O. B. LAND, Athens, Ga., Box 1187 • Liberty 6-1647

L. H. MELLOR, JR., Mid-Atlantic States, 123 Treaty Rd., Drexel Hill, Pa. • HIlltop 6-1563

H. R. FISHER, Concord, N. C., Box 83 • [illegible] 2-1640

Fabricated and installed at Lanett Bleachery and Dye Works, Lanett, Alabama by Sims Metal Works.

PROVEN SUPERIOR

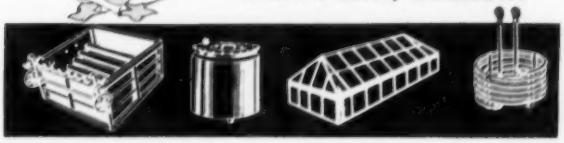
In actual day to day operation where the real worth of machinery is tested, Sims new Stainless Steel 75 psi reversed dished head 44 Dry Cans are proven superior. They require less horsepower . . . are easier on bearings . . . and save floor space with no loss in drying surface. And, *exclusive* with Sims, this is the only Dryer where the chain drive is on one side of the can, while the steam fittings are on the other side . . . permitting maintenance of the drive without time lost waiting for steam pipes to cool.

Furnished Teflon-coated if desired.

FOR ECONOMY AND QUALITY Our modern and progressive metal-working shops, our skilled craftsmen, our know how—these are guarantees of quality. For custom tailoring of stainless steel, call, wire, or write *now*.

ASME CODE STAMPED

Sims
METAL WORKS
WEST POINT, GEORGIA



FABRICATORS SINCE 1928

Is the Du Pont Solo-Matic Bleaching Process really as good as they say?

Read these straightforward answers to the questions frequently asked of Du Pont representatives

Q. Just what is the Solo-Matic bleaching process?

A. The Du Pont Solo-Matic process is an advanced single-stage method for continuous bleaching of woven cotton fabrics. It is based on a new chemical technique and is the latest in a series of major improvements in continuous peroxide bleaching—originally developed and perfected by Du Pont.

Q. What makes Du Pont Solo-Matic process different from other continuous-bleaching processes?

A. Cloth can be bleached in *one* operation with the Solo-Matic process. No severe caustic pretreatments are required.

Q. What are the important advantages of bleaching in one operation?

A. The cotton fabric is subjected to fewer chemical treatments and less severe mechanical handling—there are fewer operations to observe, and chemical control is simple.

Q. What types of fabric can be bleached by the Du Pont Solo-Matic process?

A. Any type of fabric normally continuously peroxide-bleached.

Q. Is any special equipment required for the Du Pont Solo-Matic process?

A. No. The Du Pont Solo-Matic process can be used with *any rope or open-width* peroxide continuous bleaching equipment.

Q. Does the Du Pont Solo-Matic process cost more to operate than multi-stage processes?

A. No. The over-all operating cost is actually *lower* than multi-stage systems. Up to 40% on building space and equipment investment can be saved.

Q. How do the Du Pont Solo-Matic bleaching results compare with other processes?

A. The *absorbency* is higher and the *hand* is distinctly fuller. Fabrics have a distinctive "quality" feel and appearance. Any degree of *whiteness* can be produced.

Q. Can fabrics bleached by the Du Pont Solo-Matic process be dyed successfully?

A. Yes. Good dyeing results are assured by high, uniform absorbency and freedom from mechanical abrasion defects.

Q. Is the Du Pont Solo-Matic process being used commercially today?

A. Yes. It is *now* in use by commission bleacheries handling all types of cotton fabrics—and by integrated mill bleacheries handling all types of piece goods for dyeing, printing and special finishing.

Q. What can the Solo-Matic process do for me—in my mill setup?

A. We will be glad to survey your bleachery operation and submit a confidential report to you. Specific recommendations will be made, and the benefits clearly outlined. There is no cost for this service, and you're under no obligation.

* * *

For more detailed information on the Solo-Matic process —or for help with any peroxide-bleaching problem, contact the nearest Du Pont office listed below or phone Wilmington, Delaware, OLympia 4-5121 (Extension 6039).

DU PONT PEROXIDES

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

ELECTROCHEMICALS DEPARTMENT
Peroxygen Products Division

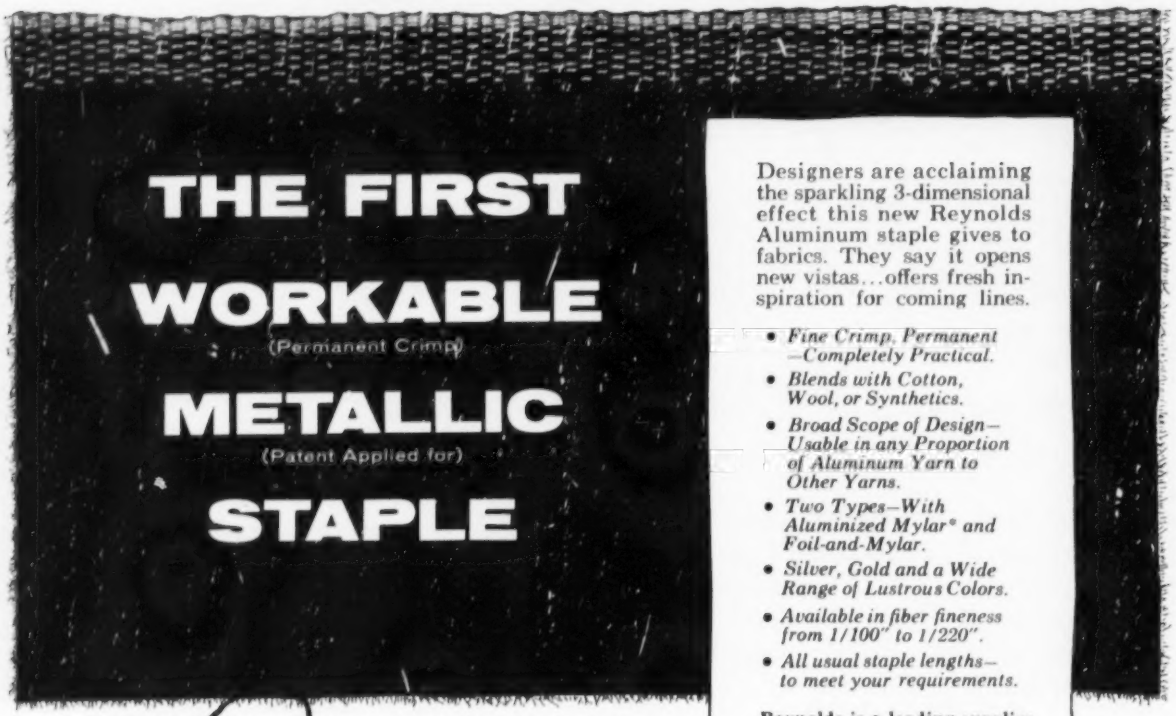
E. I. DU PONT DE NEMOURS & CO., INC.
Wilmington 98, Delaware

DISTRICT AND SALES OFFICES:
BALTIMORE BOSTON CHARLOTTE CHICAGO
CINCINNATI CLEVELAND CORPUS CHRISTI* DALLAS
DETROIT FORT WORTH* HOUSTON* KANSAS CITY*
LOS ANGELES NEW ORLEANS* NEW YORK* ODESSA*
OKLAHOMA CITY* PHILADELPHIA SAN FRANCISCO TULSA*
WICHITA* EXPORT DIVISION, WILMINGTON 98, DELAWARE

*Barada & Page, Inc.

LATEST ACHIEVEMENT

in Man-Made Fibers...



Designers are acclaiming the sparkling 3-dimensional effect this new Reynolds Aluminum staple gives to fabrics. They say it opens new vistas...offers fresh inspiration for coming lines.

- *Fine Crimp, Permanent —Completely Practical.*
- *Blends with Cotton, Wool, or Synthetics.*
- *Broad Scope of Design— Usable in any Proportion of Aluminum Yarn to Other Yarns.*
- *Two Types—With Aluminized Mylar® and Foil-and-Mylar.*
- *Silver, Gold and a Wide Range of Lustrous Colors.*
- *Available in fiber fineness from 1/100" to 1/220".*
- *All usual staple lengths— to meet your requirements.*

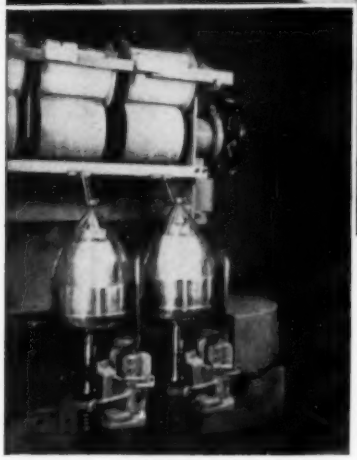
Reynolds is a leading supplier of Continuous Filament Aluminum Yarn, Aluminized Mylar, Foil-Mylar, and acetate butyrate. Call any Reynolds Sales Office or write to Reynolds Metals Company, General Sales Office, Louisville 1, Kentucky.

®DuPont Trademark for its Polyester Film.

Reynolds Aluminum Yarn

THE GLAMOUR GLEAM IN FINE FABRICS

Watch Reynolds all-family television program "Disneyland", ABC-TV.



From Laboratory to Twister . . .

Allegheny Stainless Steel *assures* uniformity and top quality

From start to finish, Allegheny Stainless is the first choice for top performance in the textile industry.

Here's why: Stainless steel protects against off colors in the dyeing and finishing department because it cleans up easily and quickly from batch to batch, leaving no traces of the previous dyes.

In yarn twisters and other equipment in the weaving department, Allegheny Stainless provides the hard, smooth surface and high abrasion-resistance that protects against snagging and binding.

In fact, whether it be in the wet or dry end of the mill, stainless steel does the tough jobs. In the card room, in warp preparation, at the slasher, or in the weave room you will find stainless steel at work.

It is stainless steel's unique combination of advantages that makes it the natural choice for applications where ease of cleaning, hardness, smoothness, resistance to abrasion, corrosion resistance and long, dependable life are important. *No other metal can match stainless steel in these qualities.*

Allegheny Ludlum produces stainless steel in every form and shape that you may require. • Let us help you to use it.

Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

Write for your copy of "REPORT TO THE TEXTILE INDUSTRY"

Fully illustrated, forty page booklet that covers applications of stainless steel in all phases of the textile industry. Includes a complete section on the technology of stainless steel.

ADDRESS DEPT. TI-93

For Stainless Steel in ALL Forms—call

Allegheny Ludlum

AL STAINLESS STEEL

Warehouse stocks carried by all Ryerson Steel plants

Customer satisfaction

depends on your package...

SONOCO

Single Head Spools

FOR INDUSTRIAL THREAD

MAKE YOUR PACKAGES BETTER

Economical SONOCO Single Head Spools provide an ideal foundation for industrial thread packages. The tapered base permits free delivery and uniform tension. Your customers want thread wound on SONOCO Single Head Spools to insure top take-off performance.

These carriers are an original SONOCO development and are industry-accepted for packaging all types of industrial thread. Special scoring and surfaces available to meet your specific need. Colored lacquer tips may be ordered for identification.

SONOCO also furnishes plastic single head spools in various colors.

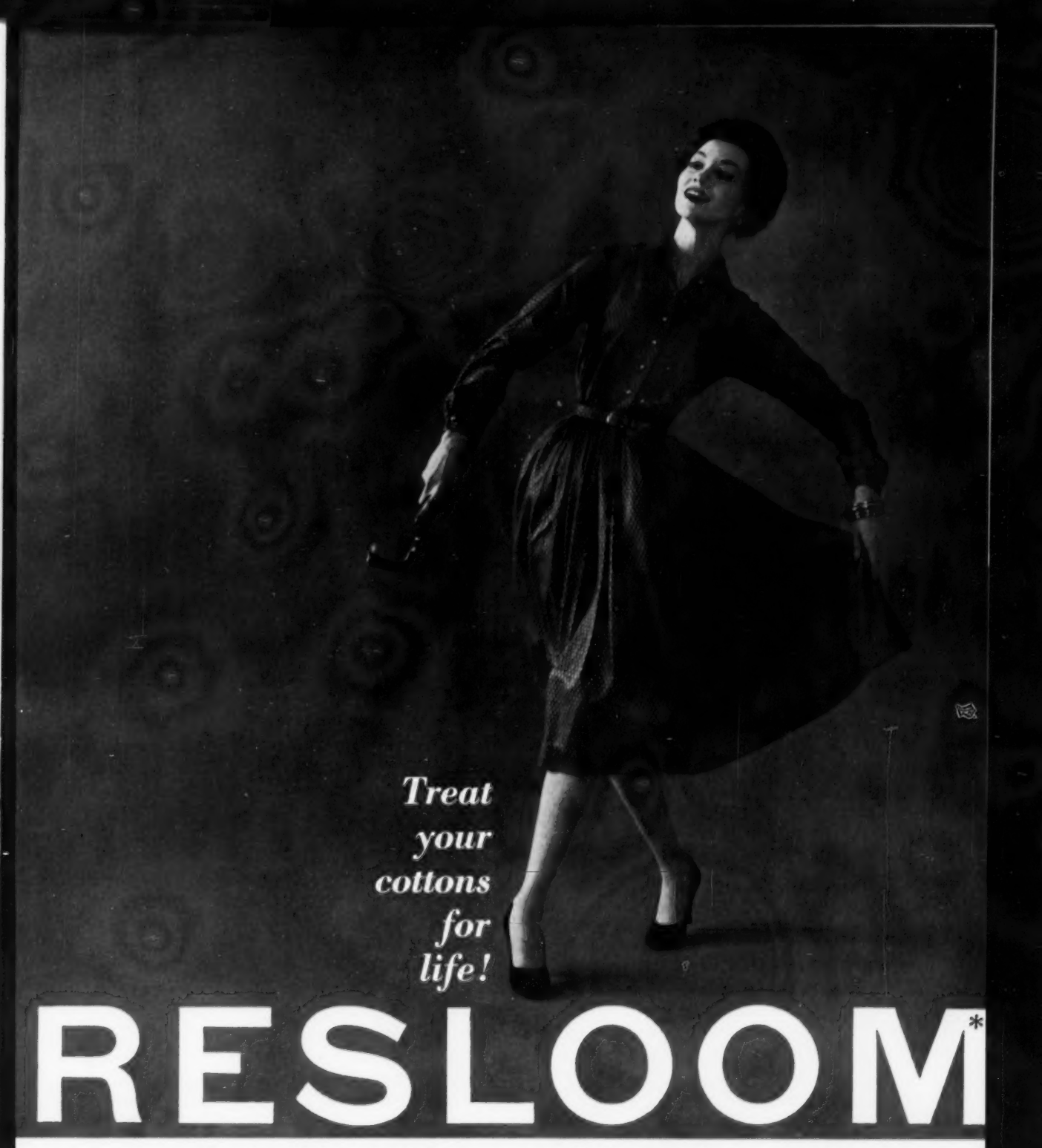
Remember—good packages depend on good carriers . . . order SONOCO Single Head Spools now!

sonoco
RUNS THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

SONOCO PRODUCTS COMPANY

MAIN OFFICE — HARTSVILLE, S. C.

MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J.
LONGVIEW, TEXAS • PHILADELPHIA, PA. • LOS ANGELES, CAL.
GRANBY, QUEBEC • BRANTFORD, ONT. • MEXICO, D. F.



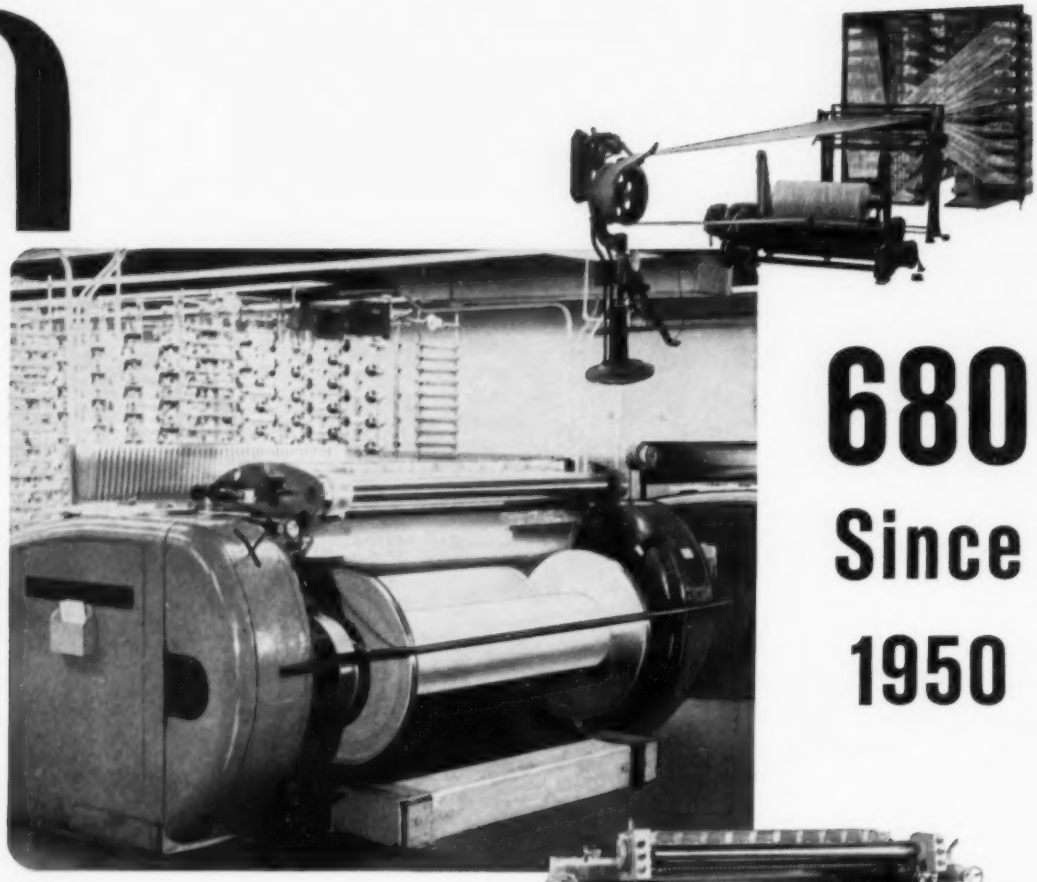
RESLOOM*

M-75 melamine "joins" the fabric — resists alkaline washings

MONSANTO

*RESLOOM: REG. U.S. PAT. OFF.

There's nothing more satisfying than the "stick-to-itis" of a Resloom M-75 finish on cotton fabrics even after constant laundering. The reason is simple: this Monsanto melamine resin doesn't coat the fabric, M-75 "joins" it, penetrating into the fibers, staying there for the life of the fabric. A highly purified monomeric resin, Resloom M-75 imparts lasting resistance to washing. Resloom M-75 finishes cure at lower temperatures and give cottons a permanently crisp hand, fine body, and shrinkage control with a relatively low resins solids add-on. Investigate the complete line of Monsanto finishing agents. They include Resloom HP (powdered melamine resin), Resloom E-50 (a cyclic ethylene urea) and AC Catalysts to step up curing efficiency. Write for technical bulletins to Monsanto Chemical Company, Plastics Division, Springfield 2, Mass.



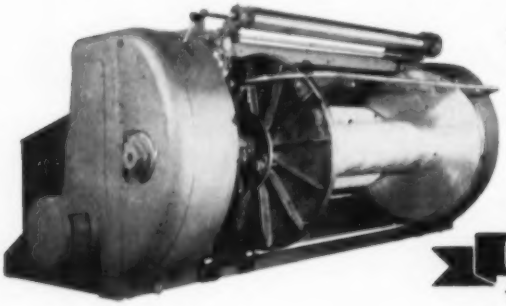
Cocker

680 Since 1950

. . . has installed over 680 warpers since 1950—approximately three times the volume of the next leading make. Speed, flexibility, economy, and many valuable exclusive features account for this outstanding popularity—from finest deniers to heaviest tire cord yarns.

Accurately maintained air operated pressure produces beams of any desired density, from hardest beams for extra hours of weaving to soft beams for perfect dye penetration. Speed and braking are rheostat controlled from both ends to provide smooth operation and instant stops at all speeds. Horizontal traverse on combs prevent channeling. Other features, such as air doffing, predetermining counter clocks, and electric speed indicators are standard on most models. Heavy construction practically eliminates vibration.

Whatever your warping requirements may be, there is a Cocker Machine which will do the job faster and better. Let us give you full information on the type you need.



THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Anthrasol Red Violet IRRN
Anthrasol Red Violet IRH
Anthrasol Printing Violet IRR
Anthrasol Printing Violet IBBF
Anthrasol Brilliant Violet I4R

Indigosol Red Violet IRRL
Indigosol Printing Purple IR
Indigosol Violet I5R
Indigosol Bordeaux I2RN

Anthrasol O
Anthrasol O4B
Anthrasol O6B
Anthrasol O4G
Anthrasol Printing Blue IGG
Anthrasol Blue IBC Powder
Anthrasol Blue IBC Paste

Indigosol OR
Indigosol Blue IRS

Anthrasol Yellow GCN
Anthrasol Yellow HCG
Anthrasol Yellow V
Anthrasol Printing Yellow I3G
Anthrasol Printing Yellow 4G
Anthrasol Golden Yellow IGK
Anthrasol Golden Yellow IRK

Indigosol Yellow R
Indigosol Yellow 2GB
Indigosol Golden Yellow AR

ANTHRASOLS® / INDIGOSOLS®

the complete line

Anthrasol Golden Orange I2R
Anthrasol Brilliant Orange IRK
Anthrasol Orange HR

Indigosol Orange I8RA

Anthrasol Scarlet HB
Anthrasol Scarlet IB
Anthrasol Printing Scarlet GG

Anthrasol Pink IR
Anthrasol Brilliant Pink I3B
Anthrasol Red IFBB

Indigosol Red I2B
Indigosol Red AB

Anthrasol Green IB
Anthrasol Green IBA Powder
Anthrasol Green IBA Paste
Anthrasol Green IGG
Anthrasol Green I3G
Anthrasol Olive Green IB
Anthrasol Olive Green IBB

Anthrasol Grey IBL
Anthrasol Grey IHL
Anthrasol Grey IT
Anthrasol Blue Black IRD
Anthrasol Printing Black IB
Anthrasol Printing Black IGR

Indigosol Grey I3F
Indigosol Black AB2N

Anthrasol Brown IBR
Anthrasol Brown IRRD
Anthrasol Brown IRRD Supra

Indigosol Brown I3B

CARBIC COLOR & CHEMICAL CO., INC.
451 WASHINGTON STREET • NEW YORK 13, N. Y.
CHARLOTTE • PROVIDENCE • PHILADELPHIA • COLUMBUS • LOS ANGELES • HAMILTON, ONTARIO

SELLING AGENT FOR
HOECHST CHEMICAL CORP.
WEST WARWICK, R. I.

REPRESENTATIVE OF
FARBWERKE HOECHST AG.
FRANKFURT (M), WEST GERMANY

Importer of the manufactures of Durand & Huguenin S. A., Basle, Switzerland

HOECHST

ANTHRASOLS® / INDIGOSOLS®

for pastel shades

- CONTINUOUS DYEING
- SAME FASTNESS AS PARENT VAT DYE
- LOWER COST
- HIGH SPEED
- AVOID SPECKING
- UNIFORM RESULTS

CARBIC COLOR & CHEMICAL CO., INC.
451 WASHINGTON STREET • NEW YORK 13, N. Y.
CHARLOTTE • PROVIDENCE • PHILADELPHIA • COLUMBUS • LOS ANGELES • HAMILTON, ONTARIO

SELLING AGENT FOR
HOECHST CHEMICAL CORP.
WEST WARWICK, R. I.

REPRESENTATIVE OF
FARBWERKE HOECHST AG.
FRANKFURT (M), WEST GERMANY

Importer of the manufactures of Durand & Huguenin S. A., Basle, Switzerland

HOECHST

News about

B.F.Goodrich Chemical *raw materials*

for resilient non-wovens...

bind fibers with versatile Hycar latices

NON-WOVEN fabrics, bonded with Hycar latex have good resilience and crease recovery, superior tear strength. And they are soft, washable, non-discoloring, resistant to solvents and dry cleaning fluids.

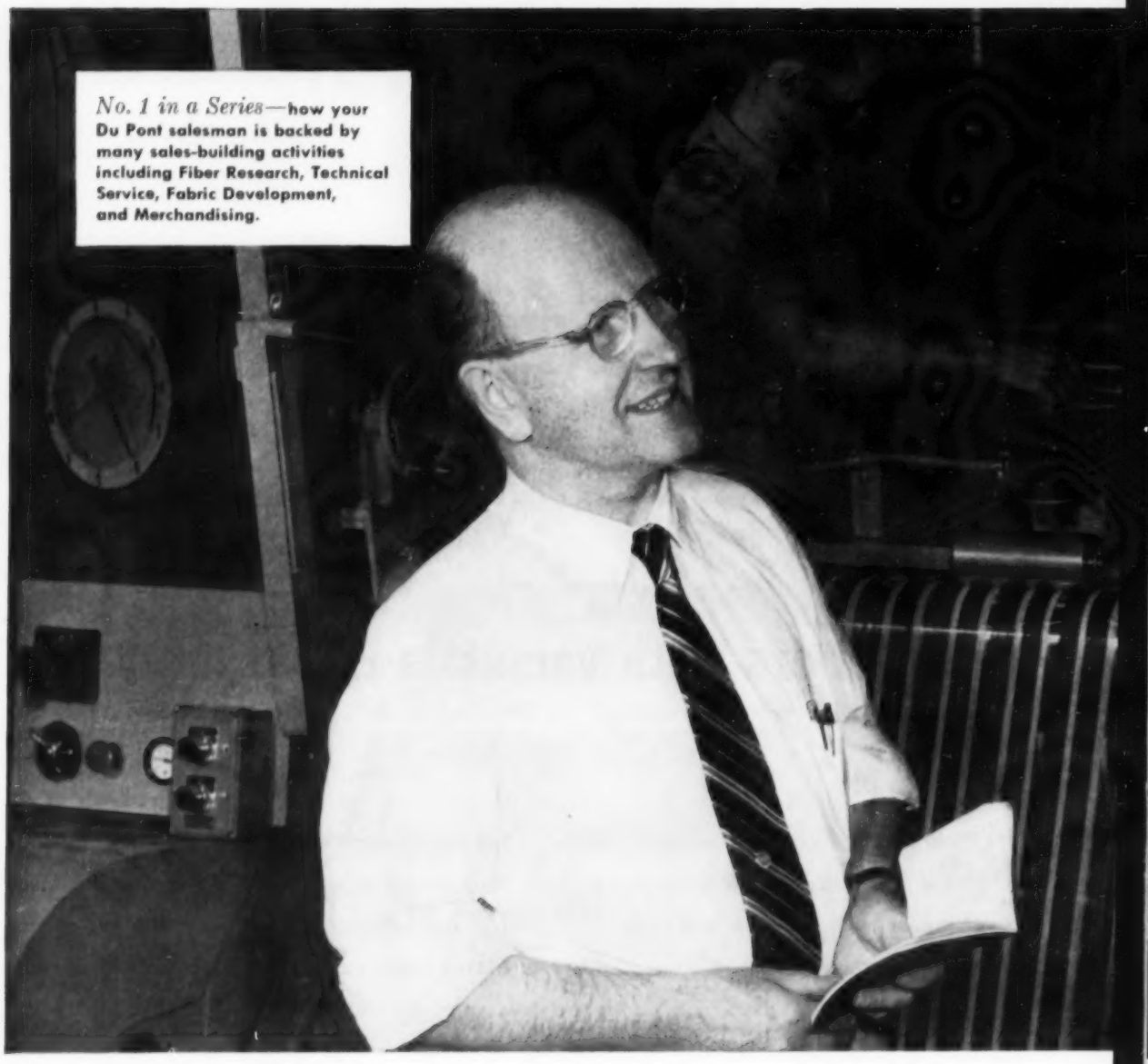
Versatile Hycar latices display excellent adhesion to a broad variety of textile fibers—nylon, rayon, acetate, cotton, wool and many fiber combinations. End uses for non-woven fabrics bonded by Hycar latices are varied. Typical examples include washcloths, simulated chamois, upholstery backing and garment inner linings.

For information on Hycar latices and their uses in the textile industry, write Dept. HF-5. B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ont.

Hycar
Reg. U.S. Pat. Off.
American Latex

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors


No. 1 in a Series—how your Du Pont salesman is backed by many sales-building activities including Fiber Research, Technical Service, Fabric Development, and Merchandising.

This Tech Service man brings to Du Pont's

Chemist by training (Cornell and Heidelberg), pioneer in nylon throwing, Rudy Schramm (at left, above) has years of practical experience that make him one of the key men in Du Pont's 125-man Technical Service organization. Collectively, these men have spent about 1,500 years working in and with mills. This experience is organized to assure you comprehensive up-to-date information on fibers and how to use them. First, there are separate teams of specialists which concentrate on testing, quality control and development of each Du Pont fiber. Backing them up are the groups which spend their time on broader aspects, such as dyeing and finishing, fabric development and laboratory service.

Knowledge accumulated by all of these groups is published in the "Technical Information Bulletins." Nearly 200 up-to-date bulletins are now in print. Millmen tell us they are time and money savers.

Rudy Schramm and his co-workers

FROM RAW FIBERS TO RETAIL SALES . . .

1,500 years' experience customers

in Tech Service answer about 5,000 requests for assistance each year. They pass on their experience and know-how by phone, mail and, when the problem needs on-the-spot attention, by personal visits to customers' mills. They're topnotch people, efficiently organized to give you technical service that you can depend on.

Du Pont believes it can increase the market for its fibers and thus benefit its customers by providing useful assistance to all levels of the textile industry. It's through your Du Pont salesman that you as a customer have access to a range of technical and merchandising information unique in the textile industry.

PRODUCT AND PROCESS NOTES FROM DU PONT

Hi-Bulk Filament Yarn—a new hi-bulk acetate filament yarn, called Type 20, is now available in 75, 150 and heavier deniers. In addition to bulk, this yarn imparts silk-like hand and luster to lingerie and apparel fabrics, and superior pile coverage to frieze upholstery fabrics.

Greater Tear Strength—cotton-nylon blends will soon have much improved tear strength as well as the great abrasion resistance previously obtained. Type 420 nylon staple, now available in limited quantity, has been engineered to match the stress-strain relationship of cotton.

"Tinselfil" Thick & Thin Rayon—this new rayon fashion yarn is now commercially available in 450 and 700 denier. Tough and lustrous, "Tinselfil" was developed to give designers another tool for creating new and interesting effects in drapery, suiting, millinery and upholstery fabrics.

New Heat and Sunlight Resistance—for outdoor and industrial uses, new Type 330 nylon has shown up to 3 times the sunlight resistance and many times the heat resistance of other nylon in laboratory tests. Available in 210 denier, it has promise in many applications, particularly for coated fabrics which can be translucent or pastel for new sales appeal.

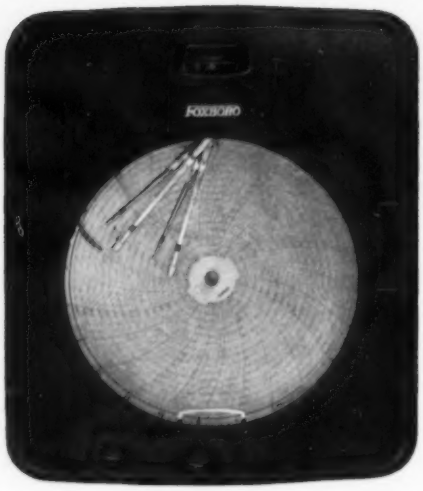
Technical Information Bulletins contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing and finishing. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need, check your Du Pont salesman or Tech Service representative.

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

DU PONT BUILDS PROFITS FOR YOU



WET AND DRY BULB INSTRUMENTS

These Foxboro instruments give separate wet and dry bulb records on the same chart, in dry bulb ranges from 32°F. to 300° F. . . . higher temperatures if necessary. They are exceptionally accurate and stable. Bulbs can be placed up to 200 feet from the instrument. Available as recorders, or air operated (Model 40) and electric (Rotax) controllers, including multi-zone and time-humidity controllers.

DIRECT-READING DEW POINT INSTRUMENTS

Foxboro continuous dew point measuring instruments are based on the Dewcel,* a simple, highly accurate humidity sensitive element that needs no water box or moving air. Accuracy is unimpaired by dust or lint. Foxboro recording and controlling instruments, used with the "Dewcel", give direct readings from —50°F. to 142°F. dewpoint, at dry bulb temperatures up to 220°F. Readings easily converted to absolute or relative humidity. Foxboro instruments for dew point include liquid expansion type and electronic type recorders and controllers . . . with either pneumatic or electric control action. The Multi-Record Dynalog* for dew point provides up to 6 records on a single round chart.

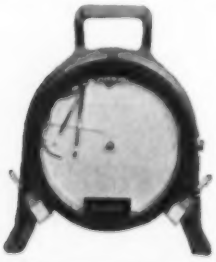
Reg. U. S. Pat. Off.

better measurement and control of humidity

DIRECT-READING RELATIVE HUMIDITY INSTRUMENTS

Direct-reading relative humidity hygroscopic instruments are designed to operate in temperatures up to 150°F. They are available for recording (including the portable model shown below), and controlling (pneumatic M-40, or electric Rotax, operated). Sensitive, accurate, reliable.

Combination recorders provide a continuous record of both temperature and relative humidity on the same chart.

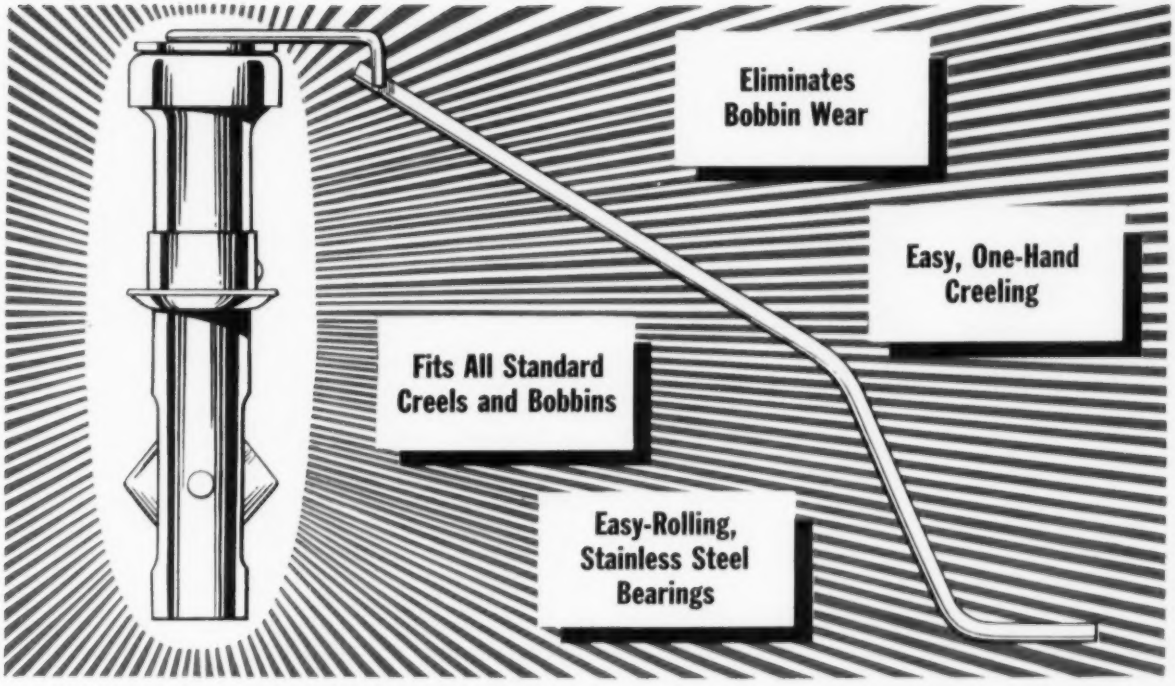


Ever since it introduced the first successful long-distance wet-and-dry bulb psychrometer, Foxboro has pioneered in the development of new and improved methods for the measurement and control of humidity. In its knowledge of textile process requirements, and its complete line of better-engineered instruments, there's more than likely the ideal solution to your own problem.

Why not write for complete information, or talk it over with your Foxboro Field Engineer, now? **The Foxboro Company, 489 Neponset Ave., Foxboro, Mass., U. S. A.**

FOXBORO HUMIDITY INSTRUMENTS

REG. U. S. PAT. OFF.

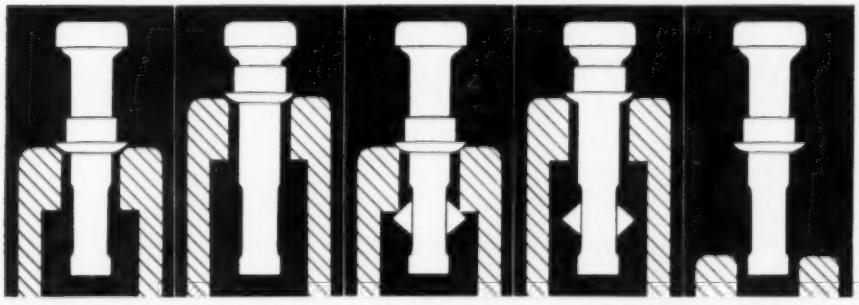


IT'S HERE! THE ALL-NEW BENDIX SPIN-MASTER BOBBIN HOLDER!

Here's the greatest improvement in bobbin holder design in many years—the Bendix* Spin-Master! Made by the manufacturers of the reliable Eclipse Bobbin Holder, the Spin-Master is adaptable to *all types* of creels and to practically *all sizes* of bobbins. Its exclusive nylon latch holds the bobbin securely yet does not gouge or wear the bearing surface. Because of its unique design, the Spin-Master makes creeling a one-hand operation. Its extra-free rolling action is superior to that provided by any other bobbin holder. And, of course, it is thoroughly corrosion resistant. Order today, or, if you prefer, write for additional information.

*REG. U.S. PAT. OFF.

HERE'S HOW IT WORKS



Bobbin holder slides easily and freely into top of bobbin. Nylon latch is concealed within the barrel of the holder.

Bobbin is pushed up against collar of bobbin holder. At this point, latch is still concealed inside the bobbin holder.

As bobbin is allowed to drop, collar of bobbin holder slides down to original position and latch snaps into place, suspending bobbin.

To release bobbin from holder, the bobbin is again pushed up, raising the collar of the holder. Latch is still securely in place.

When bobbin is again allowed to drop, latch retracts into body of bobbin holder, so that bobbin may be easily removed.

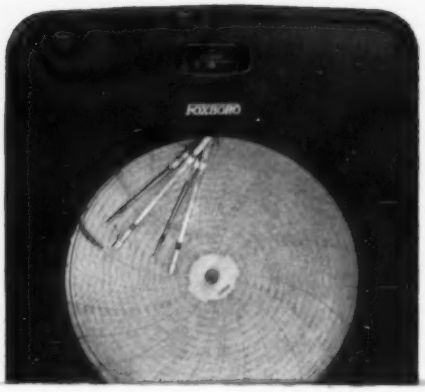
DISTRIBUTED BY:

Southern States Distributors, North Carolina, South Carolina, Va., Ala., Ga., & Tenn. • **Greenville Textile Supply,** Greenville, South Carolina • **Odell Mill Supply,** Greensboro, North Carolina • *Export Sales:* **Bendix International Division,** 205 East 42nd Street, New York 17, New York.

In other areas write to:
Eclipse Machine Division
Bendix Aviation Corporation
Elmira, New York

Bendix-Elmira, N. Y.
ECLIPSE MACHINE DIVISION

Bendix
AVIATION CORPORATION



WET AND DRY BULB INSTRUMENTS

These Foxboro instruments give separate wet and dry bulb records on the same chart, in dry bulb ranges from 32°F. to 300° F. . . . higher temperatures if necessary. They are exceptionally accurate and stable. Bulbs can be placed up to 200 feet from the instrument. Available as recorders, or air operated (Model 40) and electric (Rotax) controllers, including multi-zone and time-humidity controller

element tha
dust or lint
"Dewcel",
temperatu
humidity.
electronic
control o
records

better measurem

DIRECT-READING RELATIVE HUMIDITY INSTRUMENTS

Direct-reading relative humidity hygroscopic instruments are designed to operate in temperatures up to 150°F. They are available for recording (including the portable model shown below), and controlling (pneumatic M-40, or electric Rotax, operated). Sensitive, accurate, reliable.

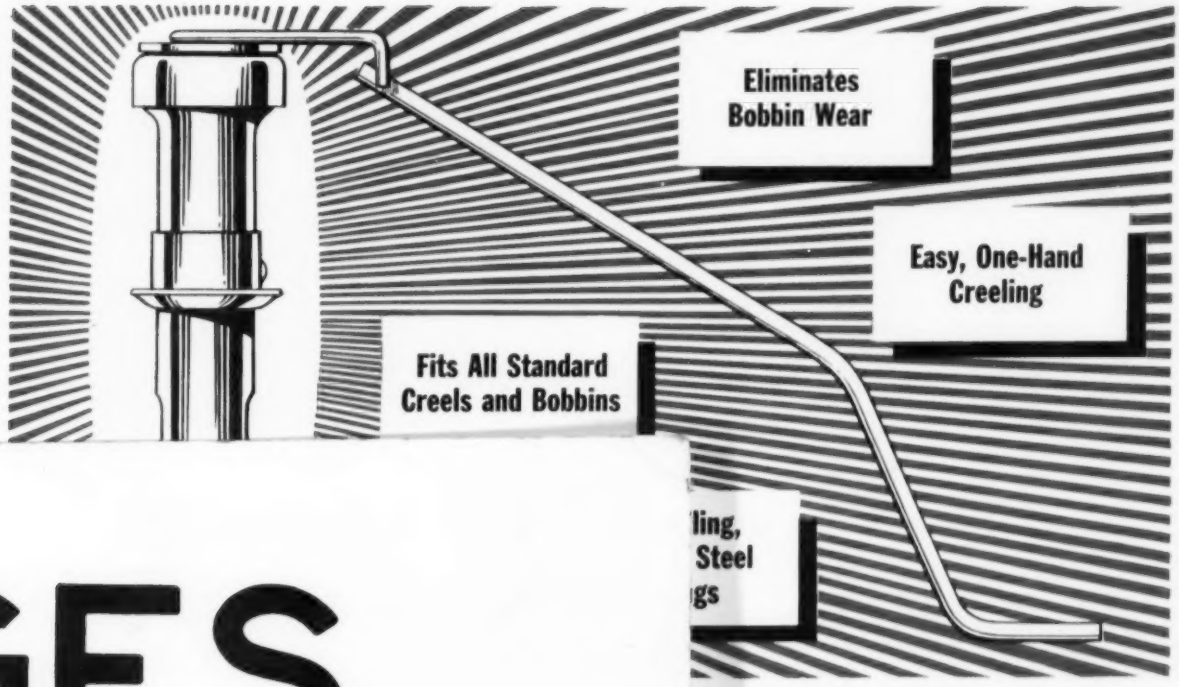
Combination recorders provide a continuous record of both temperature and relative humidity on the same chart.

PAC MISS

In its knowledge of textile process requirements, and its complete line of better-engineered instruments, there's more than likely the ideal solution to your own problem.

Why not write for complete information, or talk it over with your Foxboro Field Engineer, now? The Foxboro Company, 489 Neponset Ave., Foxboro, Mass., U. S. A.

FOXBORO REG. U. S. PAT. OFF. **HUMIDITY INSTRUMENTS**



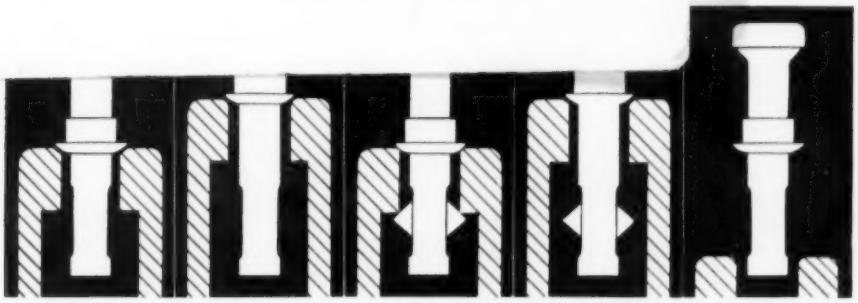
GES

SING

NEW BENDIX
N HOLDER!

surface. Because of its unique design, the Spin-nakes creeling a one-hand operation. Its extra-ng action is superior to that provided by any bbin holder. And, of course, it is thoroughly resistant. Order today, or, if you prefer, write ional information.

*REG. U.S. PAT. OFF.



Bobbin holder slides easily and freely into top of bobbin. Nylon latch is concealed within the barrel of the holder.

Bobbin is pushed up against collar of bobbin holder. At this point, latch is still concealed inside the bobbin holder.

As bobbin is allowed to drop, collar of bobbin holder slides down to original position and latch snaps into place, suspending bobbin.

To release bobbin from holder, the bobbin is again pushed up, raising the collar of the holder. Latch is still securely in place.

When bobbin is again allowed to drop, latch retracts into body of bobbin holder, so that bobbin may be easily removed.

DISTRIBUTED BY:

Southern States Distributors, North Carolina, South Carolina, Va., Ala., Ga., & Tenn. • **Greenville Textile Supply,** Greenville, South Carolina • **Odell Mill Supply,** Greensboro, North Carolina • *Export Sales:* **Bendix International Division,** 205 East 42nd Street, New York 17, New York.

In other areas write to:
Eclipse Machine Division
Bendix Aviation Corporation
Elmira, New York

Bendix-Elmira, N. Y.
ECLIPSE MACHINE DIVISION

Bendix
AVIATION CORPORATION

Modernize your v-belt drives with

TAPER-LOCK SHEAVES

–proved in over a million installations!

- No flange. No collar. *It's different.*
- Easy on—easy off.
- Just tighten the screws that wedge the bushing. Simple, isn't it?
- Always a perfect fit on shaft—tight as "shrunk-on."
- Complete range of sizes. A, B, C and D grooves, in stock.
- Try it—and you'll standardize on it!

Taper-Lock Sheaves, with their precision machining, team up with matched Sealed-Life V-Belts to insure steady performance and unusually long belt life.

DODGE MANUFACTURING CORPORATION, 3500 Union St., Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new methods. Look for his name under "Power Transmission Machinery" in your classified phone book, or write us.

DODGE
of Mishawaka, Ind.

ACID ALIZARINE BLUE B

Fast Mordant Blue B
Pr. 93

ACID ALIZARINE BLUE B is an acid mordant dyestuff producing full and bright Navy Blue shades, adapted for the dyeing of men's wear, uniforms and ladies' dress goods. Silk effects are left reserved.

In addition to its unexcelled light fastness, it is excellent to milling, washing, potting and decatizing. Due to its level dyeing properties, it is used extensively for the dyeing of piece goods.

HARSHAW

Reply to
ZINSSER & COMPANY, INC.
Hastings-On-Hudson 6, N.Y.

Subsidiary of
THE HARSHAW CHEMICAL CO.
Cleveland 6, Ohio

Warner & Swasey Pin Drafters® boost production 30%–in same floor space

at DELAWARE MILLS, INC.

"ARE we getting maximum floor space utilization from our present drawing equipment?", asked W. H. Michael, Manager of Delaware Mills, Inc., New Castle, Delaware. As the result of a detailed subsequent cost analysis, two sets of pin-controlled drawing were replaced with new high-speed Warner & Swasey Pin Drafter Intersecting Draw Frames.

Delaware Mills found that pound-for-pound they now get 30% more from the Warner & Swaseys in the same amount of floor space. Quality of their hi-bulk yarns are maintained at Delaware's same high level – and machine maintenance has been drastically reduced!

® Reg. U. S. Pat. Off.

Faller bar repinning previously cut deep into profits. Delaware now estimates that during the past year less than 50 Warner & Swasey Plastic-Bonded Faller Bars have been repinned on their six new high-speed Pin Drafters – at a cost of approximately 6 cents a day per machine! Because it's now so negligible, faller bar cost records have been discontinued.

If your plant expansion program is hampered by limited floor space, or if costly maintenance is cutting into profits, it will definitely pay you to call in the nearest Warner & Swasey Field Engineer.

SALES OFFICES

Main Office and Factory, 5701 Carnegie Avenue, Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass.
121 11th Street, N. E., Atlanta 3, Ga.
Suburban Square Bldg., Ardmore (Philadelphia), Pa.
624 Pecan Avenue, Charlotte 5, N. C.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS . . . WITH A WARNER & SWASEY

C.P. Starches...Try 'em for Size

Glass rods dipped into beakers show comparative draining ability and non-congealing qualities of Ten-O-Film, right, and conventional starch, left.

Non-congealing! Free-flowing! Ideal for Warp Sizing!

TEN-O-FILM®

starches

For warp sizing, you'll find TEN-O-FILM Starches a superior product. Ready for use 30 minutes after reaching boil, they remain stable despite prolonged heating and circulating. TEN-O-FILM is unequalled for clarity of film, and fabrics are more readily desized. For detailed information, and technical assistance in adapting TEN-O-FILM to your requirements, contact our nearest sales office, or write to:

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York 4, N. Y.

Corn Products also makes these famous starches for the Textile Industry:

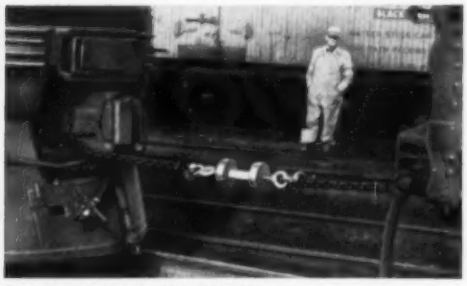
EAGLE® · FOXHEAD® · GLOBE® · HERCULES · GLOBE® Dextrines

THE NATIONAL SCENE

LESTERSHIRE BOBBIN PULLS 357 TONS DEAD WEIGHT—Something new in railroading—and textiles—took place recently at the Wilmington, Del. yards of the B & O Railroad. In a unique test, designed to dramatize bobbin strength under severe tension, a Lestershire Bobbin by National acted as "draw-bar" for 18 freight cars with a total dead weight of 736,700 pounds.

A NEW KIND OF "DRAW-BAR" FOR RAILROADS—Suspended between a three-unit diesel and a 357-ton string of cars, the Lestershire Bobbin awaits its supreme test. No abuse received in service will ever equal the punishment it must take in just a few minutes.

BEGINNING THE SUCCESSFUL TEST—Here, National engineers shackle bobbin into test harness. Bobbin chosen was a Precision Bobbin featuring Lestershire patented anchor screw construction. Heads are made of Vulcanized Fibre, barrel is hard Northern Maple.



THE BOBBIN PULLS—AND HOLDS! The full weight of 18 freight cars fails to pull the Lestershire Bobbin apart. *Reasons:* (1) Unsurpassed materials—hard, dense Vulcanized Fibre combined with hard Northern Maple. (2) Unmatched experience in precision bobbin design and construction.

Send for new, authoritative Bobbin Handbook. The only manual of its kind in the industry. 12 pages of essential data on bobbins—how to choose, materials of construction, types and uses. Yours without obligation. Just write Department W-9.

NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE

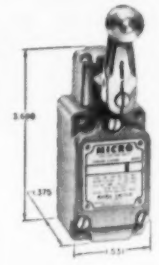
In Canada: NATIONAL FIBRE CO. OF CANADA, LTD., Toronto 3, Ont.

STANDARD AND SPECIAL BOBBINS FOR EVERY USE. National makes scores of standard bobbin types. And wherever synthetic yarns, larger "packages," and higher rotating speeds demand improved designs, National develops them. Here is your source of bobbins for almost any spindle, speed or yarn in use today.

MICRO SWITCH . . . FIRST IN PRECISION SWITCHING

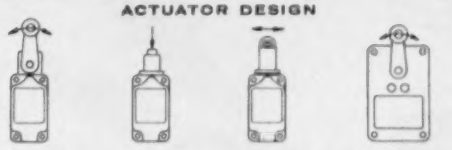
These low-cost MICRO SWITCH controls increase production speed and efficiency— reduce breakage, waste and injury

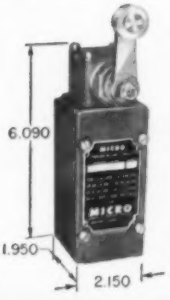
Thousands of plant operating men are using these versatile switches to upgrade present plant equipment



TYPE LS SERIES—Rugged, small, reliable. Moving parts and switching chamber completely sealed. Two-circuit, double break contact arrangement. Operating force—3 lbs. max. No. 8 terminal screws accommodate No. 14 stranded wire.

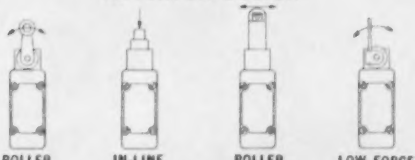
ACTUATOR DESIGN



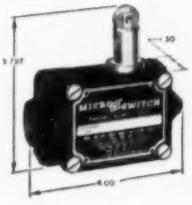


TYPE ML SERIES—Heavy duty limit switches. Combine rugged, sealed construction, precise operation and extremely versatile adjustability. Available in high-capacity, explosion-proof and two-circuit versions.

ACTUATOR DESIGN

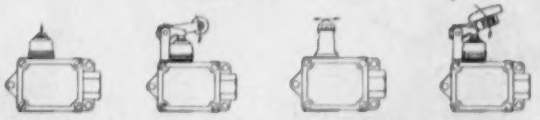


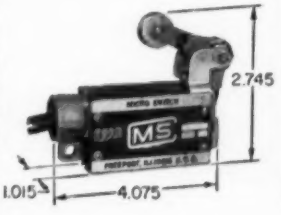
For complete information Send for Catalog 83



TYPE F SERIES—Rugged, compact precision switches with high current capacity. Seals make enclosure dust and oil-tight. Accurate repeatability. Available in either left hand or right hand designs. The SPDT series will make and break steady state currents of 20 amps. 125, 250 or 460 vac and handle in-rush currents as high as 75 amps.

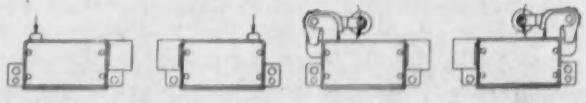
ACTUATOR DESIGNS





TYPE LN SERIES—High strength cast enclosure and design of plunger mechanism permit rapid, hammer-blow cam actuation without harm to enclosed basic switch. Extremely compact design often permits use in applications where no other switch will fit.

ACTUATOR DESIGNS



MICRO SWITCH precision switches for plant equipment are available in hundreds of variations of actuator designs, circuitry, electrical capacity and terminal designs. See your nearby Authorized Distributor. Look under "Switches, Electric" in the Yellow Pages.

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

CALCOSOL* GOLDEN YELLOW GKWP DOUBLE PASTE

There's no mistaking the quality of this golden yellow shade—its beauty makes it *top choice* as a self-shade, as a base for a wide range of clean, fresh yellow shades. And its golden qualities are no less important in producing olive green shades, tans, and light browns of vibrant beauty.

Working properties of this printing yellow are as remarkable as its good looks. Its printing behaviour and its ease of development in the print ager, make it the outstanding yellow for printing cotton, viscose, cotton-viscose, viscose-acetate, silk and wool fabrics.

You'll find it gives unusual distinction to dress goods and drapery fabrics.

YELLOW SHADES—WIDE RANGE CALCOSOL GOLDEN YELLOW GKWP DOUBLE PASTE WITH CALCOLOID PRINTING YELLOW GCB SINGLE PASTE

OLIVE GREEN SHADES CALCOSOL GOLDEN YELLOW GKWP DOUBLE PASTE WITH CALCOSOL JADE GREEN NP SUPRA DOUBLE PASTE OR CALCOSOL OLIVE GREEN BP PASTE

TAN AND LIGHT BROWN SHADES CALCOSOL GOLDEN YELLOW GKWP WITH CALCOSOL GOLDEN ORANGE RRTP PASTE, CALCOSOL BLUE 2BP DOUBLE PASTE, OR CALCOSOL BLUE GCP DOUBLE PASTE, OR CALCOSOL BLACK 2GP PASTE, OR CALCOSOL PRINTING BLACK R PASTE, OR CALCOSOL GRAY 2GP PASTE

Calco®
THE SYMBOL OF QUALITY DYES

CYANAMID

1907 50 1957

AMERICAN CYANAMID COMPANY, DYES DEPARTMENT, BOUND BROOK, NEW JERSEY

*Trade Mark

News in Brief

New Synthetics Capacity. American Enka Corp. has announced plans for expansion at its Enka, N. C., plant, which will nearly triple productive capacity for fine-denier nylon yarn and will increase total nylon capacity by 75 per cent. The

cost of the project will be more than $5 million; completion is scheduled for the second half of 1958. * * * The Du Pont Co. is weighing plans to construct a multi-million dollar Dacron plant at Old Hickory, Tenn., next to the company's present rayon facilities. The plans also call for construction of a unit to produce dimethyl terephthalate, a raw material in the manufacture of Dacron. * * * Celanese Corp. of America has purchased a 76-acre tract of land on the Yadkin River, near Siloam, N. C. Plans for use of the property have not been announced.

Knitters Fight Discount. Demands by hosiery buyers for a return to a 2-per-cent-discount-for-cash basis are being resisted

strenuously by the mills. "We can't afford it; prices are already at rock-bottom," say the mills. They stress that these discount terms were never by any means universal in the hosiery industry, even before World War II.

Top Mfrs. Not Under Walsh-Healey. The U. S. Department of Labor has announced that in the future suppliers of wool tops to wool mills with government contracts will be considered as subcontractors, and thus not subject to the provisions of the Walsh-Healey Public Contracts Act. Under the Act, woolen and worsted manufacturers with government contracts are required to pay a minimum wage of $1.20 an hour.

N. C. State Textile Collection. A world-wide collection of modern textiles has been established at the School of Textiles, N. C. State College, by Cluett, Peabody & Co., in honor of William H. Harriss, who is associated with the company's Sanforized Division.

More Machine Harvesting. About 23 per cent of the 1955 cotton crop and 27 per cent of the 1956 crop were machine harvested, reports the National Cotton Council. This

compares with only about 6 per cent of the crop mechanically picked in 1949. In the western states fully 54 per cent of the 1956 crop was machine harvested.

Course for Supervisors. American Management Association will for the first time offer a course for

$1,687,640 for a new spooler

In 1932, we purchased a Barber-Colman spooler, warper, and tailing machine for the Bevelle mill. This cost us $19,104.00. The Government has permitted us to depreciate this machine at 4 per cent per year, so that now, 25 years later, we have in our depreciation reserve $19,104.00. The old machine still has a salvage value of $2,500.00.

A new Barber-Colman spooler, warper, and tailing machine today costs $63,795.00. After deducting the $19,104.00 we have accumulated in our depreciation reserve, and after deducting the $2,500.00 salvage value of the old machine, we still need $42,191.00 more to get a new machine.

Last year, we earned 2½ per cent, after taxes, on the cloth and yarn we shipped our customers. We therefore need to sell and ship $1,687,640.00 worth of cloth and yarn in order to earn enough money to make up the difference between what we have been allowed to accumulate in our depreciation reserve, plus the salvage value of the old machine, and the price we must pay for a new machine. This money must be earned before any payment at all is made to any stockholder.

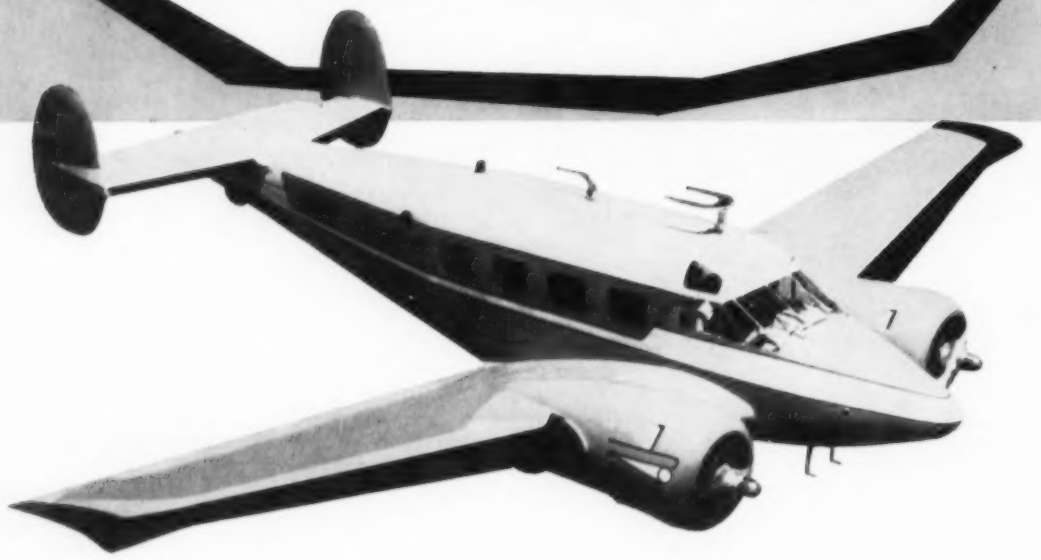
The Barber-Colman equipment has not advanced in price more than other textile machinery. The example is typical of what Avondale in particular and the industry in general are up against in getting the necessary funds to replace worn out and obsolete equipment.

—J. Craig Smith, president, Avondale Mills.

have your KEY personnel

at the RIGHT place

at the RIGHT time



when you need them

and

where you need them in...

Beechcraft

industrial airplanes

For descriptive brochure write or phone

Southern Airways Company

ATLANTA, GEORGIA, TEL. POPLAR 7-8918

Charlotte, N. C., Tel. FRranklin 6-7150 Birmingham, Ala., Tel. 4-0502

Beechcraft airfleet of the textile industry

BROAD WOVEN FABRIC PRODUCTION
(thousands of linear yards)

Type of Goods	Jan-Mar 1957	Oct-Dec 1956	Jan-Mar 1956	Per Cent Change Jan-Mar 1957 from Oct-Dec 1956	Per Cent Change Jan-Mar 1957 from Jan-Mar 1956
Cotton[1]	2,506,224	2,538,047	2,755,468	—1	—9
Woolen and worsted[2]	77,336	76,383	82,709	+1	—6
Man-made fiber and silk[1]	568,902	564,472	632,913	+1	—10

[1]Fabrics over 12 inches wide.
[2]Fabrics principally wool, reused wool, or reprocessed wool. Blanket widths are 72-inch width or equivalent; other fabrics in 54- to 60-inch widths or equivalent 54-inch width.
Source: Bureau of the Census, Industry Division, Textile Branch

supervisors, starting September 9 at the Savoy-Plaza Hotel in New York. The course will be given in three one-week units, and is designed for new appointees and candidates for first-line supervisory positions, as well as for experienced supervisors who need a foundation in modern management techniques. The course will be repeated in Philadelphia, starting October 7, and again starting January 13. For details, write Course Registrar, American Management Association, Inc., 1515 Broadway, New York 36, N. Y.

Slater Scene of Film. An educational film on textiles, which will be made available to schools and other groups, is to be filmed this fall at the Old Slater Mill Museum

in Pawtucket, R. I. It is sponsored by The Chemstrand Corp., but will include material on cotton, wool, and other natural fibers, as well as on the synthetics.

Fabric Shift for Fall. Fall 1957 production of many outerwear manufacturers will feature poplins, and washable nylons and nylon blends, rather than wool, according to John H. Vogel, vice-president of Meinhard & Co., Inc.

Release White Color Card. The 1957 Official White Color Card for users of tricot fabrics has been released by the Warp Knit Fabric Manufacturers Group of the National Federation of Textiles. Three basic shades of white are shown on warp-knit swatches—Snowhite, a pure white; Starwhite, a blue-white; and Cloudwhite, a cream white. Color cards and dye formulas for the three white shades are available from NFT, at 389 Fifth Ave., New York 16, N. Y.

"Fire-Sale" Profits. In a letter to Agriculture Secretary Humphrey, Lester Martin, chairman and president of Bates Mfg. Co., has quoted the president of Dominion Textile Co., Ltd., Canada's largest mill chain, as crediting the fire-sale price of American cotton for his company's "wonderful profit picture." Martin is conducting a campaign to "get the government out of the cotton business" by letting cotton be sold everywhere at competitive prices, with compensatory payments to farmers for lost income.

Acrilan for Italy. An as-yet unnamed subsidiary of Societa Edison of Italy will produce acrylic fiber through an agreement reached with The Chemstrand Corp., which will be a minority

News in Brief

shareholder in the new subsidiary. Commercial production is expected in about two years.

UI to New York Next May. Underwear Institute will hold its 92nd annual meeting at the Hotel Biltmore, New York, on May 1, 1958.

NFI Asks Updated Depreciation Policy. A 30-year-old textile mill is as outdated as a 1927 automobile, says the Narrow Fabrics Institute in calling on the Treasury

Department to update its depreciation tax policies. Building and equipment designs change so rapidly that any list of depreciation life is almost obsolete by the time it is printed and issued, according to NFI.

Mill Situation. "There will be increased substitution of lower grades [of cotton] for higher grades if present differentials are maintained. A few premium print cloth mills, some mills making high style fabrics, and combed yarn mills will continue to use high grades. Mills were not pleased with the 1956 Central Belt cotton. They stated it appeared brittle, that their fly waste increased and their yarn strength declined. It was generally believed that many gins of this area have applied too much heat and machining to the cotton. Combed yarn mills complain of pin trash in their cotton from all areas."—National Bank of Commerce, Memphis, Tenn.

Seat Cover Specifications. Specifications for finished fabrics of paper, saran, and colored rayon have been issued by the Monofilament Automotive and Outdoor Furniture Fabric Weavers Group of The National Federation of Textiles. They cover test methods, in-

Use these famous Procter & Gamble softeners and lubricants...

Profine

...Paste
...Special Paste
...Flakes

TODAY'S MOST ADVANCED FINISHING AGENTS

for Threads, Yarns, Fabrics!

There's no need these days to have any finishing problems. Whatever your problem, you can be sure that one or the other of the Profines will help eliminate it and help you turn out fabrics that look, feel, sew and sell better! Read below a few of the many reasons why the Profines are used by so many top-flight finishing plants.

Want to be convinced of what Profine can do for you? Then make it your business to try one or more of the Profines in your own plant soon!

Profine

Provides All These Advantages...

- Tremendous anti-static and lubrication properties.
- Full effectiveness at extremely low temperatures.
- Complete ease in making and using permanent solutions.
- Outstanding scorch resistance . . . elimination of discoloration, yellowness, odor development.

Profine

Assures Finest Finishes for All Fabrics!

The Profines work to perfection on all types of threads, yarns and fabrics, man-made or natural! A fabric finished with Profine has all the properties you want it to have—full-bodied smoothness, anti-static action, lubricity. And, equally important, the Profines are always uniform in quality . . . always dependable. When you use a Profine, you can count on every yard of thread, yarn or cloth having the same finish, the same hand!

The Procter & Gamble Textile Representative in your area will be glad to give you all the facts about Profine. Or, if you prefer, write to: Procter & Gamble, Textile Finishes Sales Department, Cincinnati 1, Ohio.

Profine

Developed and made by Procter & Gamble . . . Recommended by outstanding fiber manufacturers . . . Used by leading finishing plants . . .

FOR SMOOTHER TEXTILE PROCESSING, USE P & G'S OLATE, PROXOL, ORVUS AND KYRO PRODUCTS

spection specifications, definitions of defective material, defect allowances, definition of quality classifications, and inspection conditions. Copies are available from the Federation, at 389 Fifth Ave., New York 16, N. Y.

Blends Subject of Meet. "Fiber Blends and Mixtures" will be the theme of the Textile Institute's annual conference for 1958, to be held May 12-16 at Edinburgh, Scotland.

Dutch Join CCI. Holland is the ninth cotton-producing and -consuming country to join Cotton Council International, affiliated with the National Cotton Council, in cooperative programs aimed at protecting and expanding cotton's share of the world fiber market.

Drop Sanforlan Program. Cluett, Peabody & Co. has announced that the Sanforlan program for wool shrinkproofing will be discontinued on October 1, when its current contract with the English owners of the patent expires. Reason given was that the operation was not large enough to be profitable. About 200 firms are currently licensed by Cluett to use the Sanforlan trademark.

Piece Dye "Printing." Printed effects on nylon and Terylene (similar to Dacron) piece goods have been achieved through embossing followed by piece dyeing, Bradford Dyers Association of England reports. The process is based on disorientation of the molecules of the fibers by heat and pressure, applied by an engraved roller. The fabric is treated with a resisting agent, and then piece dyed. The disoriented parts render the resisting agent ineffective, and accept the dyestuff, causing a printed effect.

Knitting Without Needles. A circular knitting machine which uses "loop-forming elements" rather than needles is in the prototype stage at the British Rayon Research Association. The pattern can be changed in the middle of a row, and crossed or open loops can be knitted. No details of the method have been released.

Merchandising Notes

Celanese Corp. of America has extended its color guarantee policy on Celaperm solution dyed acetate to include home furnishings fabrics in which other makes of solution dyed acetate are used in conjunction with Celaperm, if the other producer will guarantee his colors, and if the fabric is 50 per cent or more Celaperm or Celanese acetate.

Du Pont Co. has initiated a hangtag program to permit ready consumer identification of underclothing insulated with Dacron fiberfill.

Enterprise, Inc., plans to market a line of knitted paper fabrics soon after the first of the year. The fabrics are now being tested in curtains and draperies, dresses, men's sport jackets, and summer handbags. The firm claims that the fabrics are drycleanable, can be sewn with standard equipment, and can be pressed.

Fireside Fabrics has been granted exclusive rights to use Sayles Finishing Co.'s "Glass Finish" on corduroys. The finish is a waxing process said to impart brilliance and luster to fabrics.

Fownes Gloves is showing a line of one-size gloves knitted of Tycora textured yarn.

A. & M. Karagheusian, Inc., reports that a liquor store in Boulder, Colo., has a 60-ft, horseshoe-shaped counter, covered with carpet. It cuts down noise and prevents bottle breakage.

Manchester Hosiery Mills report an 85 per cent sales increase for the first half of 1957, compared to the last half of 1956. This comes on top of a 78 per cent gain for July-December, 1956, compared to January-June. Sales promotion manager Larry Marks attributes the increases to "aggressive promotion of merchandise at full price." Traffic is attracted to hosiery departments by fashion shows, prizes awarded to store personnel who send customers to the hosiery department, newspaper advertising, and customer prizes.

Master Furriers Guild of America is considering proposals for united trade action against "unfair" advertising practices — use of fur names in promotions of garments made from pile fabrics of man-made fibers.

Owens-Corning Fiberglas Corp. predicts that 5 million pairs of Fiberglas draperies will be sold in 1957, compared with 2 million last year.

Patentex, Inc., will promote stretch nylons in an institutional campaign this fall in fashion magazines. Theme of the campaign will be "Relax — modern stretch stockings always fit." Patentex estimates that 1956 sales of stretch hose were about $110 million at retail.

Pepperell Mfg. Co. reports that 48 per cent of 567 persons who slept on nylon sheets in a motel test reported that they considered them superior to cotton sheets.

Rutgers Fabrics Corp. will introduce a cord suiting woven of Dacron and Jetspun solution dyed rayon in its spring and summer, 1958, line.

Wool Bureau reports that advertising in behalf of wool clothing for men and boys will reach largest number of consumers in history this fall. Color ads will appear in such magazines as *New Yorker, Life, Sports Illustrated, Holiday.*

In textile finishing plants everywhere, R & L equipment has for years been proved best by the only conclusive test — its record for producing high quality in consistently economical operation. Familiar with high standards because we set them, we also know your equipment needs and in our own field we answer them all. Check through the list to see how many ways we can serve you!

A. Continuous Crusher. B. Stainless Steel Hy-Temperature Stock Dyeing Machine. C. Stainless Steel Atmospheric Pressure Stock Dyeing Machine. D. Stainless Steel Fulling Mill. E. Derby Dry Cleaner. F. Dolly Cloth Washer.

TYPES OF R & L EQUIPMENT

Bleaching Equipment
- Caustic Washers
- Progressive Jigs
- Kettles
- Tanks

Carbonizing
- Cloth Carbonizing Ranges

Cleaners
- Derby Continuous Dry Cleaners

Compacting Machines

Crushers
- Continuous
- Semi-continuous

Dyeing Equipment
- Dye Becks
- Dye Kettles
  - Piece Dye Kettles
  - Rug Dye Kettles
  - Sample Dye Kettles
  - Stock Dye Kettles
    - Standard
    - Hy-Temperature
- Top Dyeing Machines

Dryers
- Tenter

Fulling Mills
- Cloth
- Endless Felt

Laboratory Machines

Padders

Pails

Parts

Potoyes

Pusher Mills

Reels

Rolls
- Miscellaneous
- Fulling Mill
  - Rubber Ring
  - Vulcanized Rubber
  - Wood Lagged

Washer,
- Wood
- Rubber
- Stainless Steel

Shrinkproofing Machines

Soaping
- Rope Soapers
- Soap Distributing Systems
- Soaping Machines, Rope
- Open Width

Special Machines

Squeeze Roll Extractors

Tanks
- Miscellaneous
- Size Mixing
- Storage

Trucks
- Cloth
- Dye
- Pin

Washers
- Cloth Washers (Batch & Continuous)
- Open Width
- Dolly
- Felt Washers, Endless

Wringers

Yarn Steamers

On modernization or new installations, consult an R & L "Engineers' Engineer". No obligation!

RIGGS AND LOMBARD INC.

FOOT OF SUFFOLK ST., LOWELL, MASS.

Agents: Paul A. Merriam Company, P.O. Box 86, Providence, R. I., Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill., Larry T. Nelson, 860 3rd St., Santa Monica, Cal., F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C., Harold Zayotti, Jr., P.O. Box 125, Riverton, N. J., H. E. Mott Co., Limited, Brantford, Ontario, Canada.

AN EXECUTIVE Views

THE NEWS IN TEXTILES

Prepared by a man who is closely identified with the textile industry.

"Pound Foolish"

WHILE the textile industry is bedeviled by many vexing problems, there are some positive things that can be done to help the situation. Three of these things are:

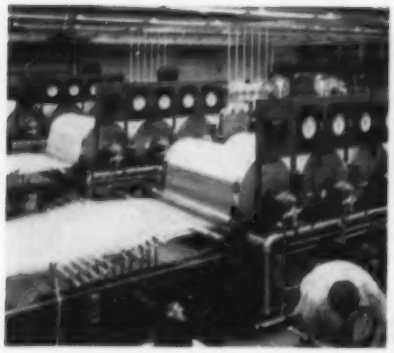
1. Marketing development
2. Inventory and cost control
3. Sensible pricing policies

All three of these items are basic and are of paramount importance. Unless we develop markets we can't make sales. If we fail to control our inventories and costs we bring about a chaotic situation that will ultimately result in bankruptcy, liquidation, and more mergers. If we fail to establish a sensible pricing system, we are unfair to our stockholders, our employees, our communities, and ourselves.

While a good bit can be said about each of these three matters, I intend to concern myself principally with the third item, sensible pricing policies. As sensible men in a basic industry, we cannot fail. We must have the wisdom, the foresight, and the cooperative spirit to win a battle against overwhelming odds. We should help each other in every way possible to establish sound markets, to control our costs and inventories, and price our yarns and fabrics in a sensible manner. Now, let's see what we can do about it.

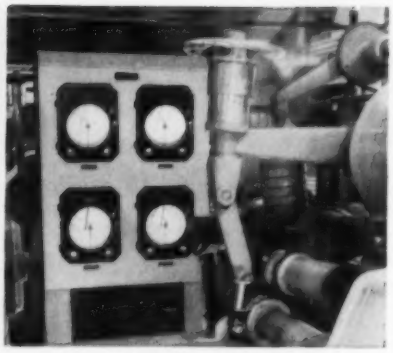
Let us assume that a prominent mill manager had an appointment to meet a good volume cutter to go over a new line of goods and place some business with the cutter for his spring line. We assume that he boards a DC-7 in Atlanta and that two hours and forty minutes later the plane is on the ground at Amon Carter Field. After the plane lands the mill manager rushes over to a nearby livery stable, mounts a burro, and three hours and a half later arrives, sweating and smelling slightly of a quadruped, at the Adolphus Hotel for his appointment.

This is a ridiculous and absurd example, I can assure you. No one would use modern plane transportation and then make the final lap of the journey on a primitive burro; however, many textile mills do things just as ridiculous. Some of them Micronaire their cotton, maintain strict quality control within the plant, use modern and up to date machinery, and combine all of this with crude and obsolete methods of pricing and merchandising the final product. This might be a shock to a good many people in the industry, but it is absolutely true that quite a few mills, even in this atomic age, are pricing yarns and goods on an average plant poundage cost, with rule-of-thumb differentials for various yarns and fabrics. Some of them use the auction, or "What'll you gimme" method. Some of them depend on commission salesmen or salaried salesmen for establishing prices. I do not mean to imply that commission salesmen or salaried salesmen are not good, well-meaning, conscientious people. I know for a fact that most of them are. However, mill management sel-



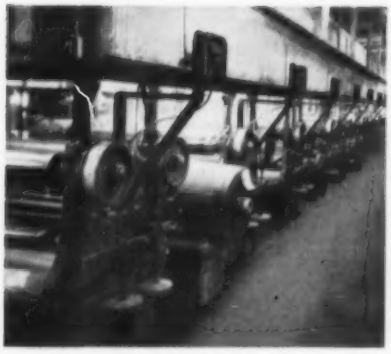
High Speed Slashing

Size Cooking and Storage



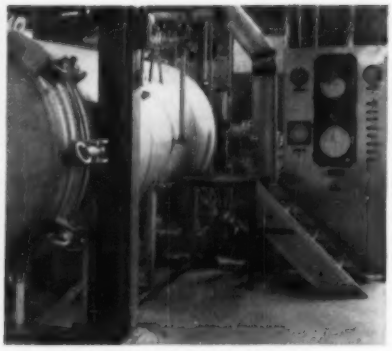
Mercerizing

Taylor CONTROLS LIKE THESE...



Dye Jig Operation

Package Dyeing



High Pressure Cloth Dyeing

CUT COSTS IN THESE TEXTILE APPLICATIONS!

Size Cooking	Top Dyeing
Size Storage Kettle	Jig Dyeing
Slashing	Wool Scouring
Kier Bleaching	Continuous Dyeing
Continuous Bleaching	Drying
Tentering	Carbonizing
Piece Dyeing	Washing
Package Dyeing	Continuous Crabbing
Beam Dyeing	Padding
Finishing	Decating
Mercerizing	Power Plant
Skein Dyeing	Air Conditioning

Taylor started putting quality controls and systems to work in the textile industry in 1919—the first instrument manufacturer in the field. The list above shows some of the Taylor Control Systems available today—ask your Taylor Field Engineer about putting them to work in *your* plant. Taylor Instrument Companies, Rochester 1, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

Taylor Instruments
MEAN
ACCURACY FIRST

VISION · INGENUITY · DEPENDABILITY

dom, if ever, insists and holds out for reasonable profits.

TAKE A LOOK at page 16 of the *Journal of Commerce*, dated Thursday, November 1, 1956, and look at the yarn quotations. Note that 8s, 10s, and 12s carded yarns are offered at the same price for singles as for two-ply. Anyone familiar with the principles of cost accounting knows that it does cost some money to ply yarns.

Now, let's go down the list a little bit further and look at 18s carded. It is reported here that 18s two-ply carded costs one more cent than 18s singles carded. Anyone familiar with twisting costs knows that a differential of 1¢ between 18s singles and 18s two-ply is ridiculous.

Go down the page just a little bit further and look at 18s single combed and 18s two-ply combed; 18s two-ply combed is being offered at 8¢ per pound more than 18s singles combed. It doesn't cost any more to twist 18s two-ply combed than it does to twist 18s two-ply carded, yet in one instance we see a difference of 1¢ per pound and in another instance a difference of 8¢ per pound. It admittedly costs more to twist 38s two-ply than it does 18s two-ply; however, we note a differential of 6¢ per pound for 38s two-ply combed over 38s singles combed, whereas the differential between 18s singles combed and 18s two-ply combed is shown as 8¢ per pound.

People in the yarn business, of course, admit that this is asinine and ridiculous, but what do the people do who offer fabrics for sale? They'll beat 'em to a nub on their home grounds and let 'em offer their own odds.

Recently a grey goods mill was offering for sale a number of different constructions. All of these constructions were being offered at the same poundage price. This was being done despite the fact that the average yarn counts in some of the fabrics ran in the vicinity of 8s singles, and in other fabrics ran approximately 20s singles. It is needless to say that these people were losing money. They went to one of their customers and told him that they could no longer offer him goods at the same poundage price and would have to discontinue making two numbers that they were furnishing him.

The customer went out and found a new source of supply for the two numbers that he was running with this poundage price-quotation mill. In the meantime, the mill installed a cost system which gave it a cost on each fabric made. Much to their alarm, management found that on the two numbers that they had dropped, they were actually making money. These numbers, of course, happened to be coarse-yarn, low-sley, and low-pick goods.

They went to their former customer to see if they couldn't get back in the picture, but the customer had a new source of supply and saw no reason to go back to his original supplier for the goods. This mill actually lost a good account because of inadequate cost information.

RECENTLY a well known textile firm was offering for sale two constructions. Both of these were made using the same warp counts; however, in the filling one fabric had nine picks more than the other fabric, and the filling yarn was half the size in the one with the higher pickage. Furthermore, the high-pick, fine-yarn filling goods weighed 1¾ ounces per square yard less than the low-pick, coarse goods.

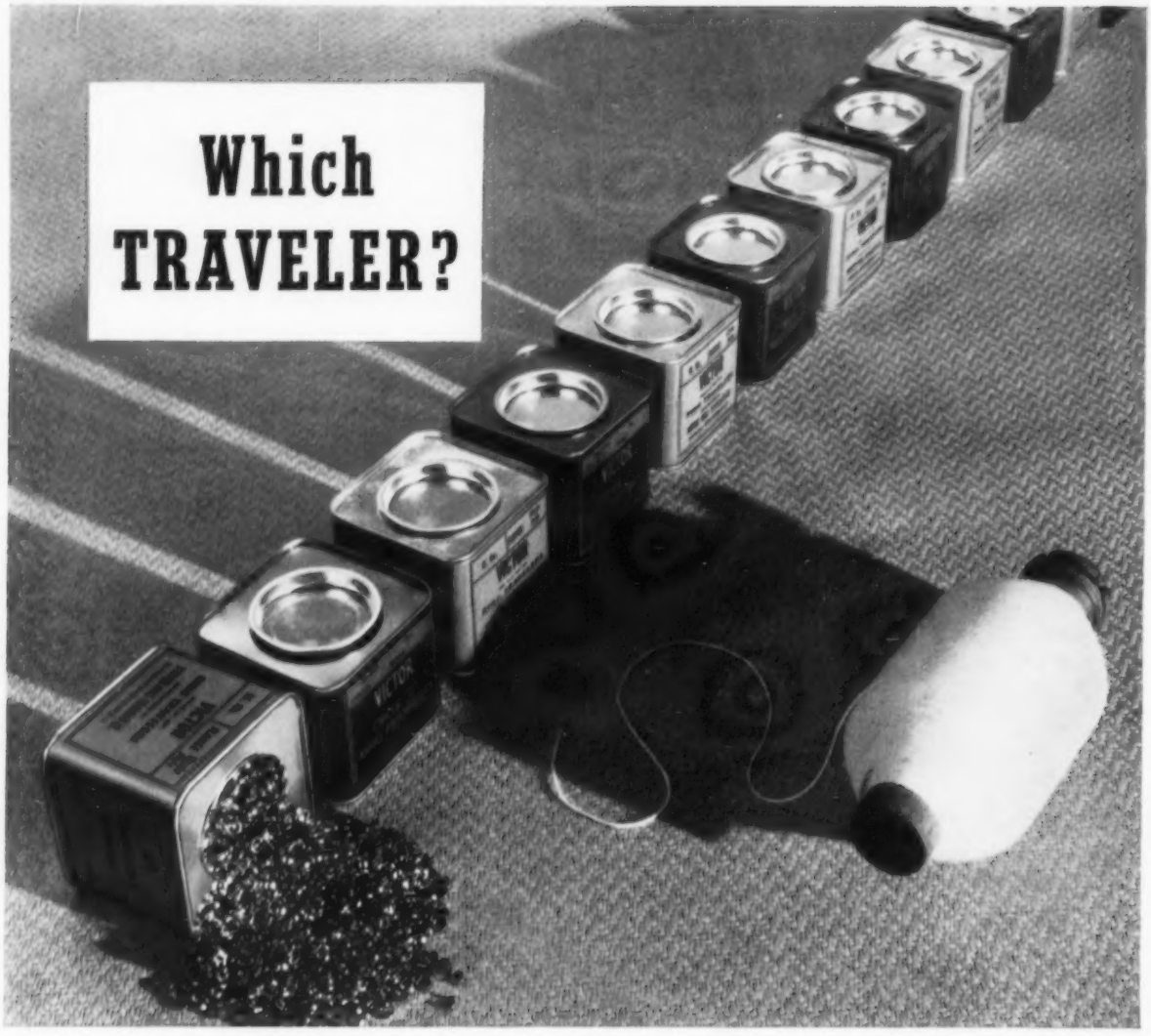
Sound cost accounting would indicate that the cost per pound would be a good bit more for the lighter yarns, higher pickage and lighter weight material, but imagine their chagrin when they found that the lighter weight goods with more picks, with finer yarn were actually selling at slightly less per pound than the heavier goods with coarse yarns and low pickage. The matter was checked and it was found that the mill could come out on the coarse goods, but would sustain a substantial loss on fine goods. Of these fabrics, the light-weight one with the higher pickage and the finer counts in the filling was, of course, the better seller. The buyers know a bargain when they see one, and they go for it. This situation was not at all humorous to the mill's salesmen. They immediately wanted to know why the mill couldn't meet competition.

The average man managing a textile mill is a good man. In most respects he is better than an average man. He tries to do what he can to serve his customers, his employees, his stockholders, and his community. He is intelligent, well-educated, and his pride and joy is in the capital improvements that he has made in his plant facilities.

The average buyer is another good man. If you make a close check into the situation though, you will find that he is certainly no more intelligent, and for the most part is not as well educated as the mill manager. All he wants to do is to make the best buy possible for his firm.

What happens when the mill manager and the buyer get together to arrive at a price for goods? Without going into all of the gory details of happenings during the negotiations, the final chapter in the play leaves the buyer stalking out looking like the cat who had just devoured the canary, with the mill manager shivering in his socks and his underwear (that is, if he is lucky).

LET'S TAKE a look at the mill manager when he makes a purchase. I wonder just how much he would pay for vat jade or sulfur black. How much would he pay for 75-denier nylon? How much would he pay for starch? How much would he pay for caustic soda? Can he negotiate a trade? I don't think that there is any doubt in the mind of anyone that Mr. Mill Manager buys dye, starch, chemicals, and numerous other items irrespective of the vendor. Check the stream of salesmen offering dyestuffs, chemicals, and starches that come by your mill. You must admit that there is competition. Compare the financial statements of the textile mills with those of the dyestuff industry, chemical industry, the automotive industry, the steel industry, or perhaps any other in-



NO two fibers run exactly alike. For example, a 20's synthetic or blend yarn requires a traveler of a different size and type than that used in running cotton yarn of the same number, for best results in spinning.

"Guesswork" and haphazard probing to find the right traveler uses up valuable time, puts you "on the spot".

If your ends down are excessive, if your quality and production are off, make the *one* smart move that has helped so many mills gain greater productivity. Talk over your trouble with a Victor Service Engineer.

Mill-trained, every Victor Service Engineer is a *specialist* in traveler applications, has often helped clear up the most puzzling spinning and twisting problems. Whether you are running conventional fibers, synthetics, or blends — he can often make other valuable suggestions for improving yarn quality and production.

Write, wire or phone our nearest Victor office for prompt, friendly service. There's no obligation.

VICTOR Ring Travelers

VICTOR RING TRAVELER DIVISION
OF SACO-LOWELL SHOPS

PROVIDENCE, R. I. . . 1 Sabin St. . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . 914-916 East Franklin Ave. . . Tel. UNiversity 5-0891

dustry and observe the results.

A mill is a place where purchases are made on a more or less fixed-price basis, and sales are made on a basis of rumor, hysteria, panic and — the economists say in some instances on supply and demand.

Can we drive into a Gulf service station and drop a hint that Standard Oil down the street is selling gasoline for 1¢ per gallon less, and strike terror to the soul of the service station operator?

Can a small hole-in-the-wall jobber with $25,000 in net assets create a panic in the textile market by a few well-placed rumors?

How can men of good will engage in the vicious, cut-throat competition that is employed in the textile industry? Why do they look at each other like strange bulldogs when someone is so rash as to suggest that a price increase is in order due to advances in labor costs, cotton costs, chemical costs, etc.? An unlettered farmer with a truck load of highly perishable produce can actually price and market his products to better advantage than a mill manager with a Ph.D. degree.

A wise general evaluates the situation before he deploys his forces. Do we evaluate the situation before we make decisions? Do we actually know what we are doing? Before proceeding further, let's ask ourselves a few questions to see if we know where we stand.

Before we can compute a cost, it is necessary to have the information on hand to do the job:

Are our loom speeds up to standard?

Are our front roll speeds up to standard?

Are our efficiencies up to standard?

What does our waste cost us?

What is the standard waste for each piece of our equipment?

Do we check to see that it is within our standard?

How often do we check this?

Does our check include reworkable waste, as well as actual tangible waste?

Do we allow our card tenders, drawing tenders, frame tenders, doffers, and winder tenders to short-doff?

What are our standard package weights?

Do we check to see that our package weights are up to standard?

How often do we check package weights?

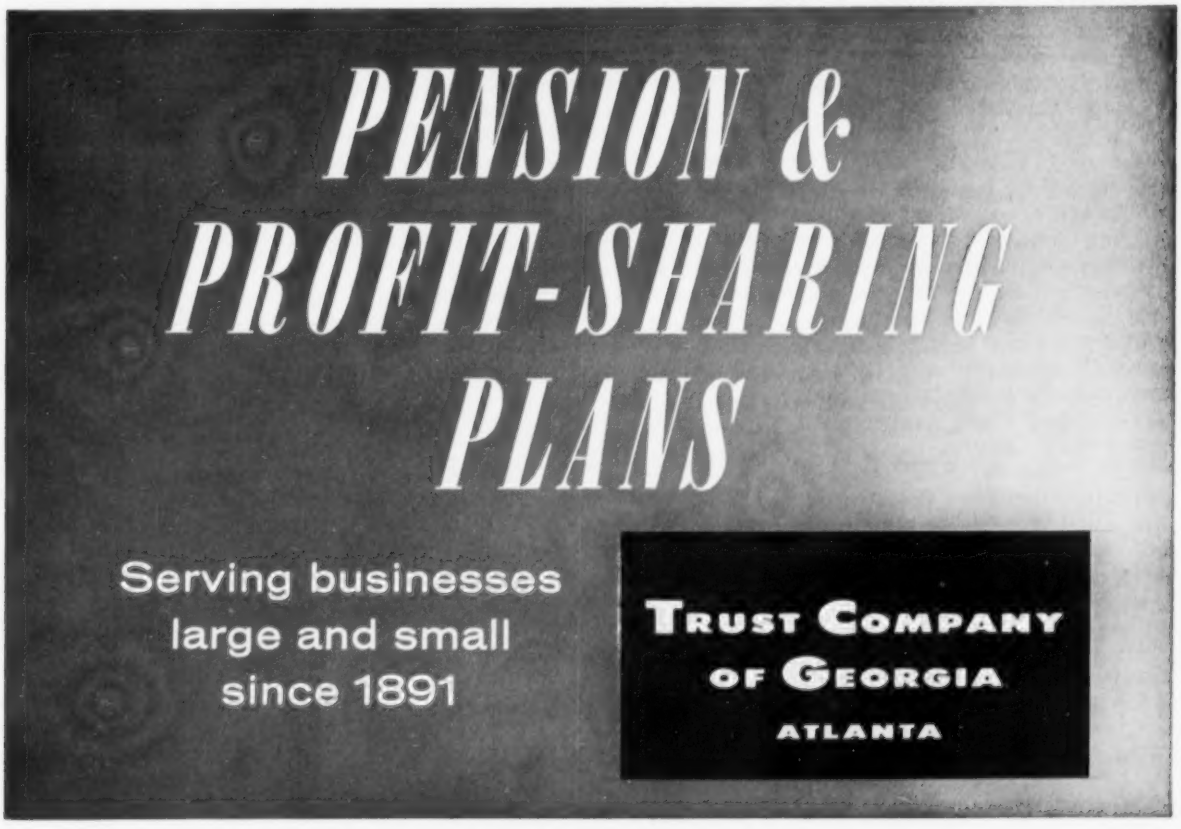
Do our frames produce sliver, roving, and yarn? No, I'm not trying to be funny. Go out in the plant and count the idle deliveries and spindles and get a shock. How often do we count our idle spindles and deliveries?

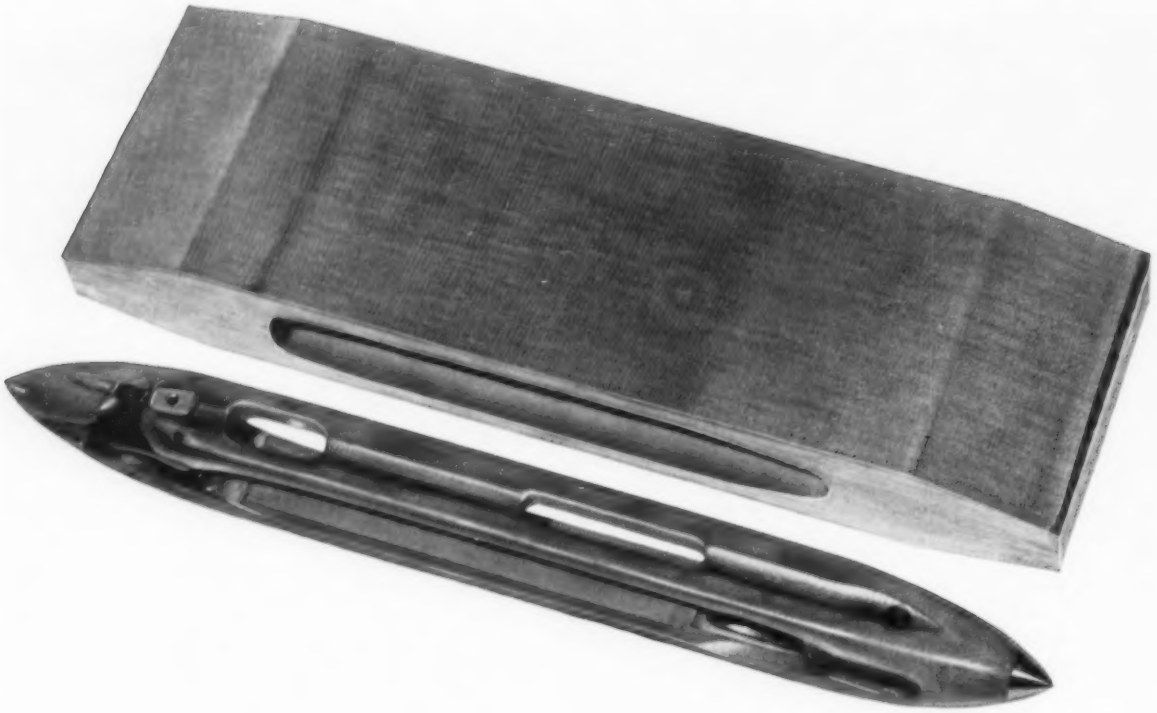
What standards have we set up for them?

Are our yarns heavy?

Do our fixers always change the pick wheels when styles are changed on our looms?

Do we ship cloth heavier than





New **MICARTA**® plastic shuttle lasts at least 3 times as long as wood

Rugged Westinghouse Micarta molded-plastic shuttles reduce your weaving room costs by giving you longer shuttle life and lower maintenance costs.

When you consider what conventional shuttles can cost you in breakage of shuttles, picker sticks and other vulnerable parts, increase in off-quality cloth, loss of production and higher labor and repair costs, it's easy to figure what long-lasting Micarta shuttles can mean to your weaving room.

Shuttles are produced out of a solid, uniform piece of grainless molded plastic.

There is no cracking or breaking . . . no snagging of delicate fabrics . . . no need to worry about splintering.

Westinghouse does not make the finished shuttle, but supplies shuttle forms to the Southern Shuttles Division, Steel Heddle Mfg. Co., Greenville, S. C., which produces economical, long-life Micarta shuttles under the trade name Duramold. Make sure Micarta plastic is used in the shuttles you buy for your mill. J-06633-X

WATCH WESTINGHOUSE!

*WHERE **BIG** THINGS ARE HAPPENING **TODAY!***

the standard weight?

How many people in your organization issue credits? Is there some prescribed manner set up for handling credits and making adjustments?

Are we selling each and every fabric and yarn in our mill at a profit?

Are all of our accounts profitable accounts?

Are all of our sales territories profitable?

Do all of our salesmen make a profit for us?

Do we have an adequate inventory control?

Is our inventory control set up for raw materials?

Is our inventory control set up for yarns and fabrics?

A close-out is generally the result of an unsound inventory policy. Do we run our mills on bona fide orders, or on hopes of orders? Other things can cause a close-out, but in the end inventory policy, or rather lack of inventory policy, brings about a sale commonly known as a close-out. Some close-outs stay in the market and depress it considerably for more than a season. The prevention of close-outs by inventory control would do a good bit to solve some of the problems in the industry. When we make a close-out do we write "close-out" on our salesnote? When we make a close-out do we write "close-out" on each and every invoice?

MR. MILL MANAGER, did a buyer ever approach you with a copy of a salesnote or an invoice from one of your competitors? Sometimes the prices on these prize exhibits are so low as to cause some doubt as to whether the prize exhibit constitutes a bona fide sale for the coming season, or a close-out lot from the last season. If salesnotes and invoices are properly labeled, the prize-exhibit price negotiator would have some of his fangs drawn.

"A little knowledge is a dangerous thing." In quoting fabrics do we use reasonable differentials between fabrics? Do we give information to price negotiators that will enable them to beat us to death with our own figures?

Few mills realize how much seconds, remnants, and close-outs cost them. Do our sales records show the amount of yardage sold in each style as first quality, as second quality, as remnants, and as close-outs?

For selling costs do we include selling salaries, with applicable group insurance, social security, unemployment compensation and retirement benefits; for sales offices, commissions, trade discounts, travel, entertainment, advertising, dues and subscriptions applicable to selling, allowances for seconds, remnants, and close-outs and, in some instances, designing and sample expense?

Did mill management, in the recent business flurry, pass on to customers the wage increases, increases in dyes, chemicals, metal parts, cotton, and other items? You know as well as I what happened. They ran to the telephone just as fast as they could and let their large pet customers cover at the old prices for a period of from four to six months. If management is not going to take advantage of a strong market, just what will it take to make management insist on a fair and adequate mark-up on each and every yarn or fabric?

Is there any reason why we can't determine what our goods cost us and add a legitimate profit? Are we slaves to an antiquated method of pricing fabrics? Do we have an adequate and up-to-date system for computing costs?

Do we make a reconciliation for each department or cost center, as well as for our entire operation?

Do we figure individual costs for each yarn count and each fabric that we manufacture?

In pricing yarns and fabrics, do we make each item stand on its own record?

When we price goods for less than 6% on our investment are we being fair to our stockholders?

Why should we wear out our machinery for less than a nominal return?

Does our equipment need the exercise?

What type of pricing policy do we have?

Do we price the fabrics ourselves?

Does the person assigned to price

the fabrics have a financial interest in the mill? Or are our fabrics priced by salesmen? Are they priced by commission agents?

It is all right to say "We meet the market." The problem is—can we afford to meet the market?

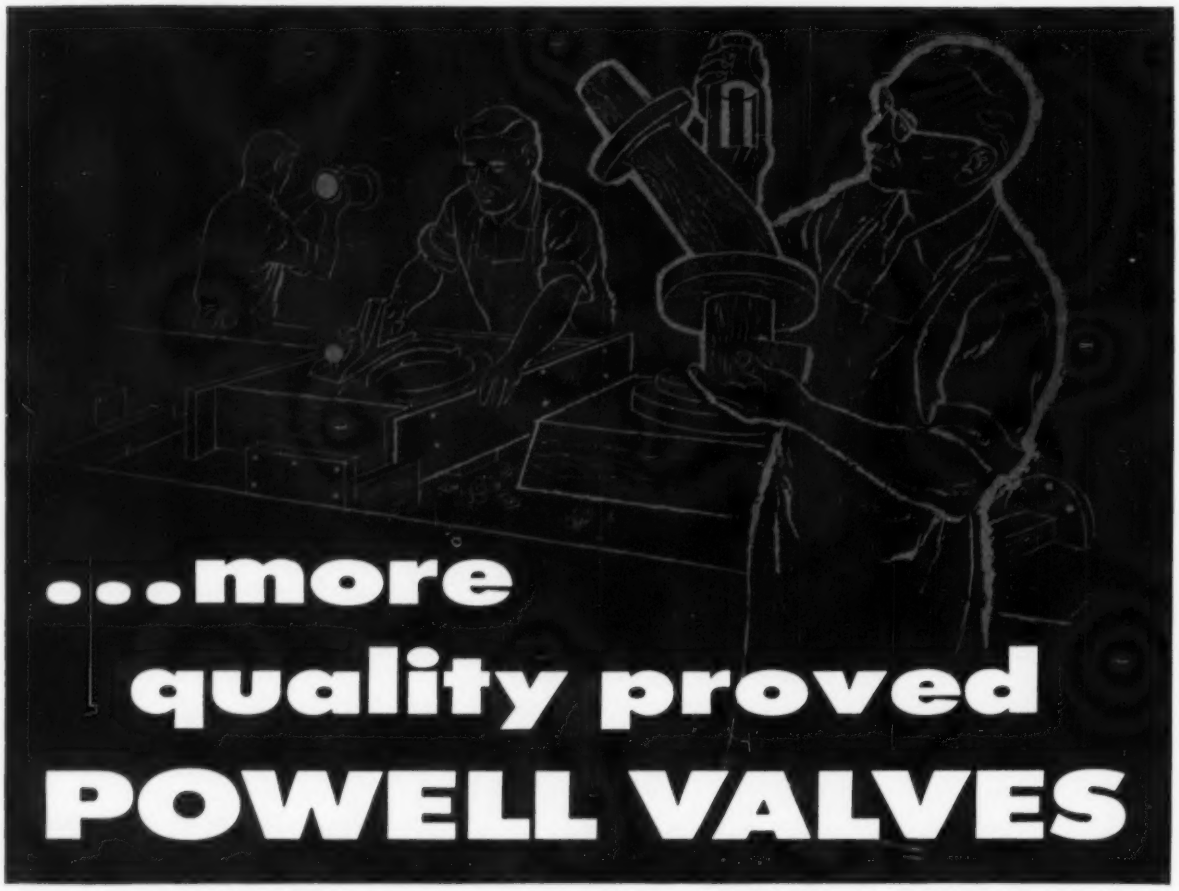
In order to price goods intelligently, it is necessary that we first have a sound system of cost accounting. Our own accounting staff might be able to do the job. Even if they do a good job in determining our cost, do we actually know how we stack up with our competitors? A good cost consulting firm for a fee will be glad to let you know how you stack up with your competitors. Of course, the consultants do not name your competitors, but they can at least tell you what is par for the course.

LET US SUPPOSE that we have a jam-up standard cost system adjusted in accordance with a reconciliation made between standard and actual costs. Let us further assume that we have net assets of $10,000,000 in a plant with 1200 looms. To simplify the situation, we will assume that all looms are the same type.

If we are to return to our stockholders 6% on net assets in a year, then we should pay them not less than $600,000. In order to pay the stockholders $600,000, we must assume that 52% of our profit before taxes will go to the Federal Government, 2% of our profit before taxes will go to the State Government and for the sake of example only, consider that we want to put 6% in our surplus. That means that we would have 40% of the profit before taxes left to go to the stockholders.

Dividing this 40% into the $600,000 that we want to pay the stockholders as a bare minimum, we find that we would have to earn $1,500,000 before taxes. This would be distributed as follows: $780,000 to the Federal Government, $30,000 to the State, $90,000 to surplus, and $600,000 to stockholders.

Dividing our $1,500,000 by 1200,



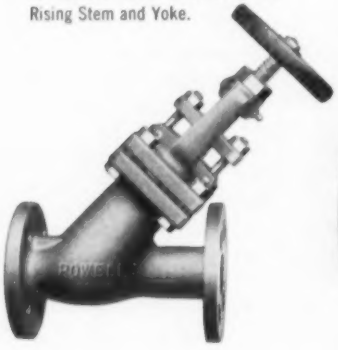
...more quality proved POWELL VALVES

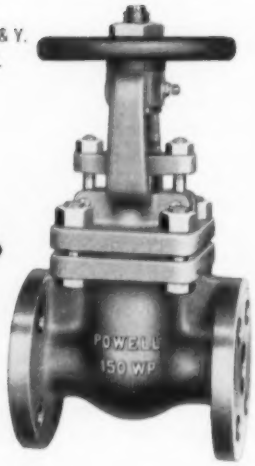
Fig. 2337—Stainless Steel Gate Valve for 200 Pounds W.P. Screwed-in Bonnet. Inside Screw, Non-rising Stem.

Fig. 1847—Small Stainless Steel Swing Check Valve for 200 Pounds W.P.

Fig. 2491—Stainless Steel O.S.& Y. Gate Valve for 150 Pounds W.P.

Fig. 2107—Stainless Steel "Y" Valve for 150 Pounds W.P. Outside Screw Rising Stem and Yoke.





for quality-crafted flow control

Ask your Powell Valve Distributor for the facts about quality-proved bronze, iron, steel and corrosion-resistant valves. Whatever your flow control problem, there's a Powell Valve to solve it.

THE WM. POWELL COMPANY, CINCINNATI 22, OHIO . . . 111th YEAR

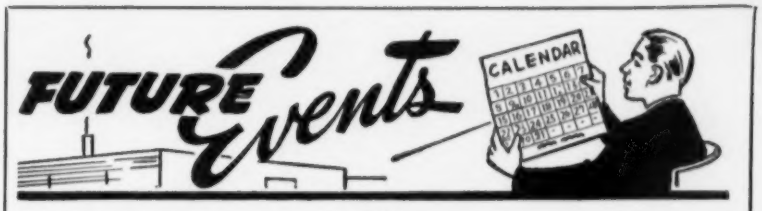
our number of looms, we find that we will have to earn $1,250 per loom per year before taxes. If we consider our manufacturing year as 50 weeks, we would divide the $1,250 per loom by 50 to give us a minimum of $25 per loom per week that we would have to earn in order to pay our stockholders a fair return. On a two-shift operation we would have to earn $12.50 per loom per shift, and on a three-shift operation we would have to earn $8.33 per loom per shift.

The hard goods industries have launched an all-out effort to get more and more of the consumer's dollar. Heavy expenditures are allocated for consumer research and market development. Despite the fact that the population is increasing, the market for textile products seems to be diminishing rather than expanding. The textile industry needs men with energy, foresight, and determination to develop new markets and get more of the consumer's dollar. Large segments of the industry have resisted these needed changes to such an extent that the industry actually has a bad name in the eyes of young potential employees.

Capital improvements are wonderful things. If a mill doesn't spend its depreciation figure plus perhaps a little more for improvements, it is equivalent to eating out of the pantry. If we eat out of the pantry long enough the cupboard will soon be bare. All of us agree that this is good business, but do we consider first things first? What happens when the sales department asks for $15,000 for consumer research and market development? What happens when the accounting department asks for $15,000 additional budget expenditure for modernizing the cost system and setting up controlled inventories? What happens when manufacturing asks for $300,000 to buy some new machinery?

The chances are that the $30,000 requested by sales and accounting would yield far more than the

(Continued on page 283)

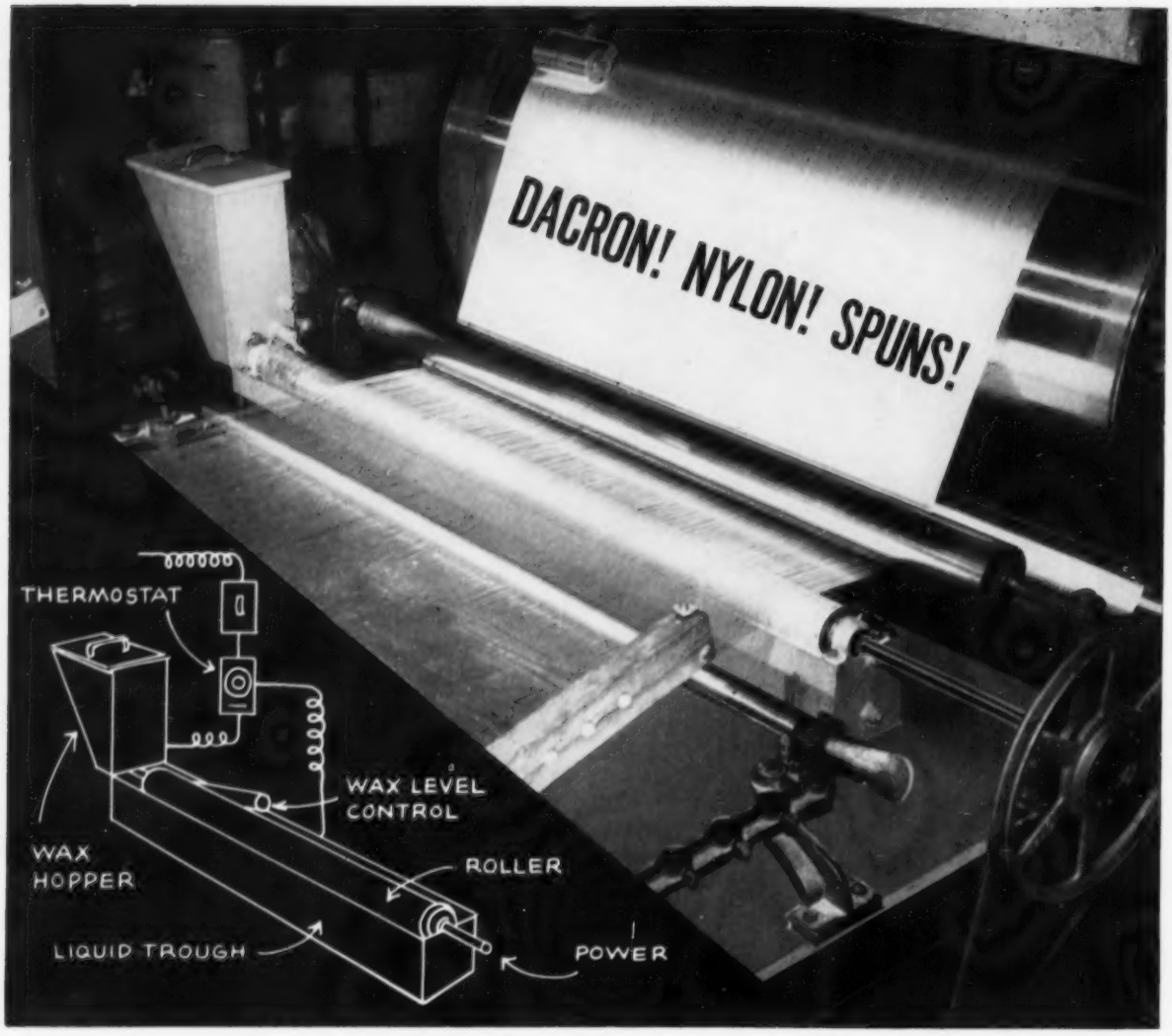


1957

Date	Event	Location
Sept. 4-6	Fiber Society meeting jointly with members of Textile Institute	Hotel Statler Boston, Mass.
13	Northern New England Section AATCC outing	Wachusett Country Club W. Boylston, Mass.
13	Southeastern Section AATCC	Country Club Columbus, Ga.
20	South Central Section AATCC	Hotel Patton Chattanooga, Tenn.
19-20	Fall meeting Textile Quality Control Association	Hotel Barringer Charlotte, N. C.
19-20	Chattanooga Yarn Association annual meeting	Castle-in-the-Clouds Lookout Mountain, Tenn.
26-27	Combed Yarn Spinners Association annual meeting	The Cloister Sea Island, Ga.
27	Joint meeting Delaware Valley and New York Sections AATCC	Hotel Hildebrecht Trenton, N. J.
27	Rhode Island Section AATCC	Narragansett Hotel Providence, R. I.
27	Western New England Section AATCC	Rapp's Restaurant Shelton, Conn.
27-28	Piedmont Section AATCC annual meeting	Hotel Barringer Charlotte, N. C.
28	Textile Operating Executives of Georgia fall meeting	Ga. Tech Atlanta, Ga.
Oct. 2-3	Chemical Finishing Conference	Hotel Statler Washington, D. C.
3-4	Quartermaster Association annual convention	Fairmont Hotel San Francisco, Calif.
7-9	Institute of Textile Technology Technical Advisory Committee and Board of Trustees meeting	ITT Charlottesville, Va.
10-11	Fall meeting Southern Textile Methods and Standards Association	Clemson House Clemson, S. C.
12	Textile Operating Executives of Alabama fall meeting	Thach Auditorium Auburn, Ala.
15-18	A.S.T.M. Committee D-13 fall meeting	Sheraton McAlpin Hotel New York City
26	Mid-West Section AATCC	Bismarck Hotel Chicago, Ill.
Nov. 14-15	A.I.E.E. Conference on Textile Industry Applications	N. C. State College Raleigh, N. C.
14-16	AATCC National Convention	Hotel Statler Boston, Mass.

1958

Jan. 30-Feb. 1	Textile Div., American Society for Quality Control annual conference	Clemson House Clemson, S. C.
Feb. 12-14	Cotton Research Clinic	Carolina Hotel Pinehurst, N. C.
Mar. 18-21	A.S.T.M. Committee D-13 spring meeting	Sheraton Park Hotel Washington, D. C.
Apr. 10-12	American Cotton Manufacturers Institute annual meeting	Hollywood Beach Hotel Hollywood, Fla.
16-18	Alabama Textile Manufacturers Association annual meeting	Hotel Buena Vista Biloxi Miss.
21-22	National Association of Hosiery Manufacturers annual meeting and Hosiery Industry Conference	Hotel Roanoke Roanoke, Va.
23-26	Cotton Manufacturers Association of Georgia	Boca Raton Hotel & Club Boca Raton, Fla.
30-May 1	The Fiber Society	Clemson House Clemson, S. C.
May 1	Underwear Institute annual meeting	Hotel Biltmore New York City
6-8	Canadian Textile Conference	Queen Elizabeth Hotel Montreal, Que., Can.
June 19-21	Southern Textile Association annual convention	Grove Park Inn Asheville, N. C.
Sept. 25-26	Northern Textile Association	Wentworth-by-the-Sea Portsmouth, N. H.
Oct. 6-10	Southern Textile Exposition	Greenville, S. C.
15-25	International Textile Machinery Exhibition	Belle Vue Manchester, England
30-Nov. 1	AATCC National Convention	Hotel Conrad Hilton Chicago, Ill.



AFTER-WAX WITH CONVAX

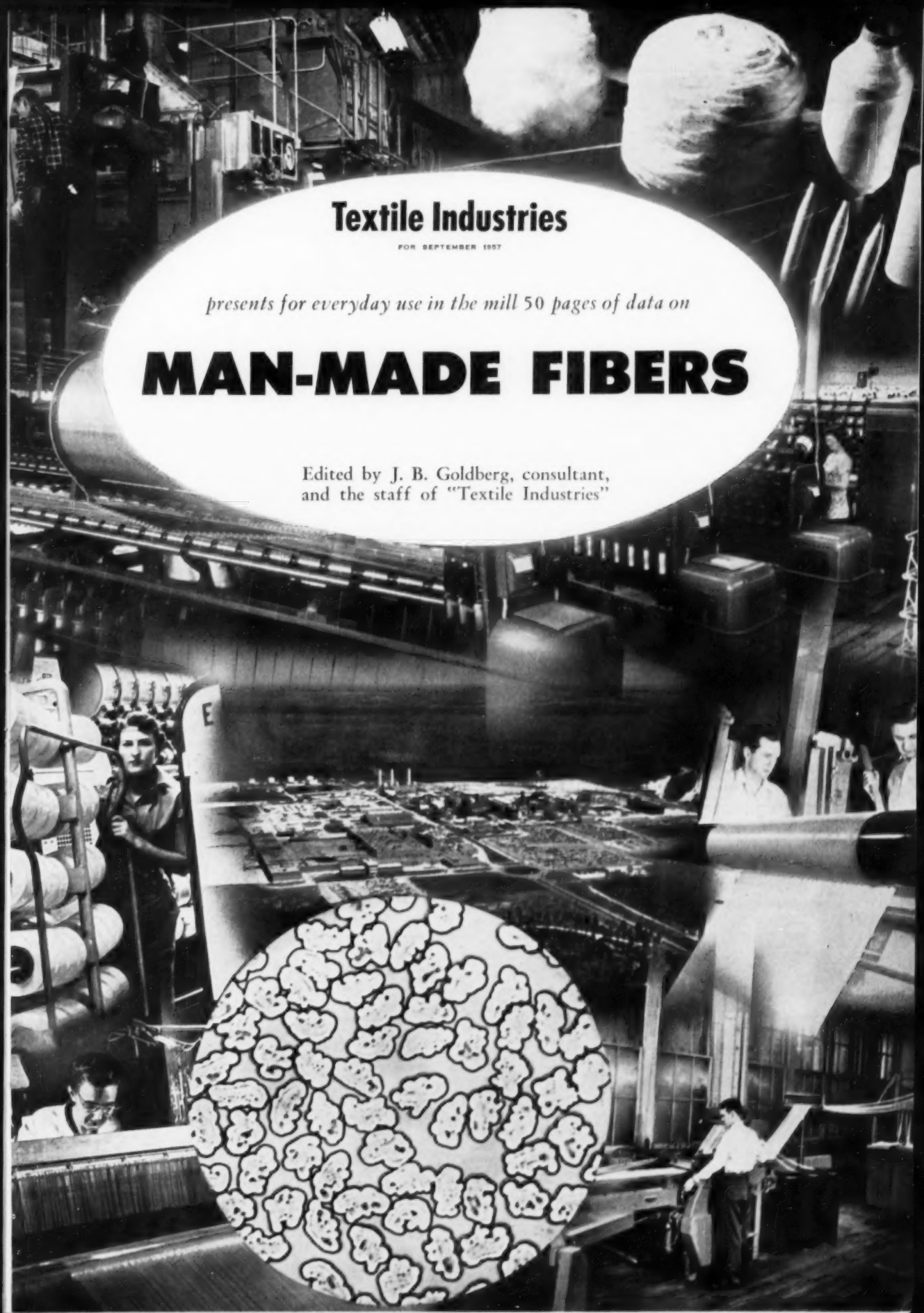
the high melting protective coating that is 100% emulsifiable

NO GUMMING AT SLASHER OR LOOMS — NO FINISHING PROBLEM

This new wax and its applicator are engineered for this textile use. Constant wax level is maintained with size level control that ensures even application. Unit is completely automatic and readily installed on any slasher. Please write for details. BRYANT CHEMICAL CORPORATION 6 North St., N. Quincy 71, Mass. or Box 2301, Spartanburg, S. C.

Brytex

CONVAX



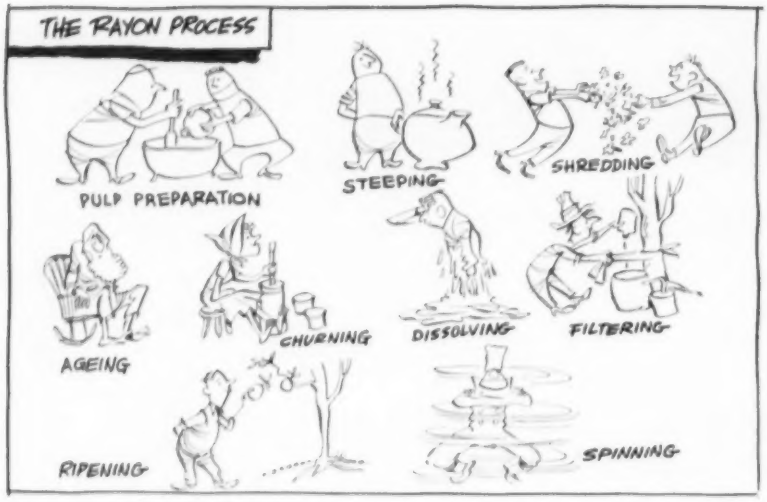
Textile Industries

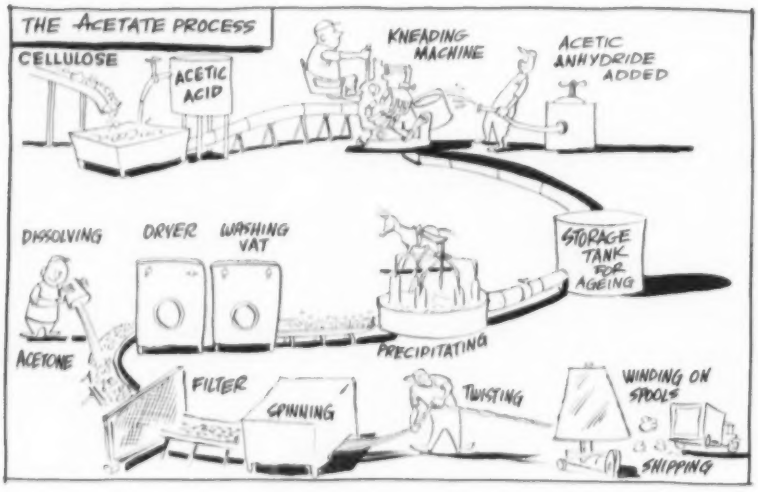
FOR SEPTEMBER 1957

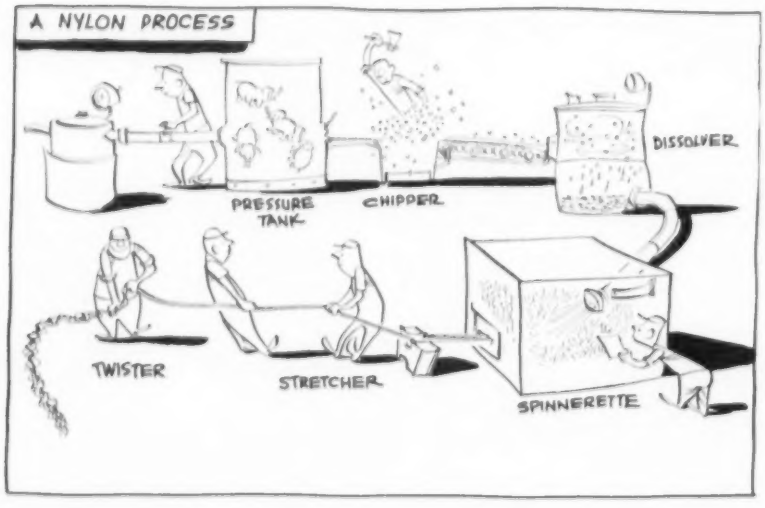
presents for everyday use in the mill 50 pages of data on

MAN-MADE FIBERS

Edited by J. B. Goldberg, consultant,
and the staff of "Textile Industries"







HERE ARE

How they were developed,

RAYON

Rayon is the oldest of the man-made fibers; it is produced in the greatest volume, and is probably the most versatile.

Although the first patents for the production of rayon were issued over a hundred years ago, commercial manufacture did not begin until 1891, when a plant for producing rayon by the nitrocellulose process began operation in France. The second method for the manufacture of rayon—the cuprammonium process—became commercially practical in 1898, when a plant was opened in Germany.

The great bulk of the rayon produced in the world today is manufactured by the viscose process, which was first used on a commercial scale in England in 1905. Today over 95 per cent of U. S. rayon production is viscose; the balance is made by one producer, who uses the cuprammonium method.

Rayon is available in filament, staple, and tow forms; in bright, dull, and semidull lusters, and in a wide variety of filament and yarn sizes.

Although rayon suffers a substantial loss in strength while it is in the wet state, it has a dry strength double that of wool, and in some instances is being produced with tenacities far in excess of that of cotton.

Rayon possesses excellent affinity for many classes of dyestuffs to provide any degree of colorfastness desired, and rayon fabrics accept various chemical finishes readily to impart improved crease recovery properties, resistance to shrinkage and stretch in laundering, water repellency, or resistance to burning, mildew, or other destructive agencies.

The largest single outlet for

THE MAN-MADE FIBERS

how they are made, production figures, plant capacity, and uses

rayon is in automobile tire cord, a market which it captured from cotton after World War II. However, nylon is now making substantial inroads into the market, as shown in the following figures from the Bureau of the Census (in millions of pounds):

Tire Cord & Fabric Produced

	1954	1955	1956
Rayon fabric, woven	268	320	249
Rayon cord, not woven	61	87	85
Nylon	29	49	61
Cotton	13	16	10

Rayon is produced by the viscose process by 12 companies in the U. S., in 19 plants, and one plant uses the cuprammonium process. Their present capacity is estimated by *Textile Organon* as 689 million pounds of filament annually, and 536 million pounds of staple and tow.

Actual production in 1956 was 556.8 million pounds of filament yarn and 341.0 million pounds of staple and tow. Imports for 1956 were 1.8 million pounds of rayon yarns and monofilaments, and 92.0 million pounds of staple, tow, tops, and spun yarn.

ACETATE

Cellulose acetate was known as a chemical compound as long ago as 1869, and filaments were produced from it in Germany in 1899.

Commercial production of acetate yarn was begun on a small scale in the U. S. in 1914, and on a larger scale in England in 1920. Volume production first began in this country in 1925 at the Cumberland, Md., plant of the American Cellulose and Chemical Manufacturing Co. (now Celanese Corp. of America).

Although acetate is derived in part from the same basic raw material as rayon, that is, cellulose, it is outstandingly different in its softness of hand, superior crease recovery properties without benefit of special finishes, and distinct dyeing characteristics. While its lower resistance to heat makes it susceptible to damage from too high ironing temperatures, its qualities make it an excellent combination yarn or blending fiber with rayon, as well as offering distinctive hand and drape in 100 per cent acetate woven and knitted constructions. Acetate staple is resilient, and in addition to its popularity in apparel and furnishing fabrics, it is widely used as a batting for quilts and in quilted linings, and as filling material for pillows, sleeping bags, and comforters.

One of the properties of cellulose acetate is that it is saponified or hydrolyzed, i.e., the combined acid radicals are split off, by alkalies. During World War II this property was utilized by the Celanese Corp. of America to produce a saponified acetate fiber, "Fortisan," which is stronger and more stable than ordinary acetate.

Fortisan is produced by completely saponifying the acetate under high tension, which not only splits off the acetyl groups from the fiber, but also parallels the molecular structure, resulting in higher strength. Its chief use so far has been in industrial fabrics, but it has begun to find its way into the apparel and home furnishings fields.

Another variant of acetate now in commercial production is cellulose triacetate, manufactured by Celanese Corp. of America under the name "Arnel." When Arnel is heat treated in fabric form, it imparts to such fabrics a combination of desirable characteristics.

Arnel has higher temperature resistance than ordinary acetate, good dyestuff affinity and color fastness, crease and pleat retention, low moisture regain, and better soil resistance than most other man-made fibers.

U. S. capacity for the production of acetate filament, staple, and tow is estimated by *Textile Organon* at 415 million pounds annually (including triacetate and saponified acetate). Actual production in 1956 was 287.9 million pounds.

NYLON

The American Society for Testing Materials defines nylon as, "A generic term for any long-chain synthetic polymeric amide which has recurring amide groups as an integral part of the main polymer chain, and which is capable of being formed into a filament in which the structural elements are oriented in the direction of the axis."

There are at present two types of nylon produced for textile uses in the U. S. The first, nylon 66, is so called because there are six carbon atoms in each of its basic constituents — hexamethylene diamine and adipic acid. Similarly, nylon 6 is made from caprolactam, with six carbon atoms.

Nylon is the result of a program of fundamental research into the chemistry of long-chain polymers begun by the Du Pont Co. in the late 1920's under the direction of Dr. Wallace H. Carothers. A number of polymers were investigated, but finally the polyamides were settled upon as the ones most likely to give a fiber with useful textile properties.

The first nylon fibers were made in the laboratory in 1935, the first nylon hosiery was knitted experimentally in 1937, and pilot plant production began in 1938. In late 1939, commercial production was started with the opening of a

plant at Seaford, Del., and during the next year 64 million pairs of nylon hosiery were sold.

Nylon's high rank in the list of textile fibers may be attributed in large part to its great strength, wet and dry; low density; good elasticity; and inherent toughness or resistance to abrasion.

Stretch- or elastic-type nylon yarns, such as Helanca, have had a tremendous impact on men's and children's socks, women's hosiery, and such items as panties, shorts, and other knit goods. Nylon is also used in bulked filament yarns, such as Taslan and Ban-Lon, to give new effects of texture and hand to both woven and knitted fabrics.

There are now two producers of nylon 66 in the U. S.—Du Pont Co. and Chemstrand Corp. — while three firms have reached commercial production of nylon 6—American Enka Corp., Industrial Rayon Corp., and the National Aniline Division of Allied Chemical & Dye Corp. One other company — North American Rayon Corp.—is in the pilot plant stage of production. In addition, five smaller companies extrude nylon monofilaments.

Du Pont, the only producer of nylon in 1945, is estimated to have had a capacity of about 20 million pounds annually at that time; industry capacity is estimated to be about 268 million pounds a year at present, and plant increases in progress or planned will bring productive capacity to about 364 million pounds a year by the end of 1958.

POLYESTERS

The polyesters were first investigated as fiber-forming materials by Dr. Carothers of the Du Pont Co., during his investigations which led to the development of nylon. They were discarded, however, in favor of the polyamides, since they did not have the chemical stability of nylon, and had a melting point so low that troubles in ironing would have resulted.

Later, chemists at the Calico Printers' Association in England went further with Carothers' work, and developed a polyester fiber with improved textile properties. In 1946, the Du Pont Co. purchased the U. S. rights to the new polyester fiber from the CPA, and began production in 1953 at Kinston, N. C., under the trade name "Dacron."

Polyester fiber went into production on a commercial scale in England in 1955; it is manufactured by Imperial Chemical Industries, Ltd., under the trade name "Terylene."

The Du Pont Co. is at present the only U. S. producer of a polyester fiber, although Tennessee Eastman Co. has one in the experimental stage.

Dacron is a polymer of ethylene glycol and terephthalic acid (from which the name "Terylene" is derived). It possesses high wet and dry strength and high resistance to stretch; its abrasion resistance is second only to that of nylon. It has extremely high resilience, or the ability to at least equal wool in recovery from creasing when dry, easily surpassing it in this respect when wet or under high humidity conditions.

Like the other hydrophobic fibers, Dacron is subject to the generation of static electricity charges, especially in dry atmospheres. When used for clothing in 100 per cent form it presents a serious problem to careless smokers due to hole-melting when contacted by hot tobacco ashes. The staple exhibits pilling characteristics, but yarn twist, fabric construction, and improved dyeing and finishing techniques are overcoming this deficiency.

Dacron seems to have found its largest outlets in blends with cotton in dresses, blouses, sportswear, other women's wear, and in men's shorts and shirts, washable suitings, and rainwear and in blends with wool in suitings. It has been widely promoted in wash and wear garments and also lends itself to bulking processes of the Taslan and Ban-Lon type.

Current productive capacity for Dacron filament, staple, and tow at Du Pont's Kinston plant is estimated at about 35 million pounds annually, but facilities for a 25 per cent increase in staple and tow capacity are expected to go into operation during the last quarter of this year.

ACRYLICS

The acrylics are a family of fibers which, although they have characteristics in common, differ as much among themselves as do viscose, cuprammonium, and acetate. They all have a basic relationship in that they are derived from the chemical acrylonitrile or a chemical closely related to it.

A recent analysis of the differences among the acrylics classified them as follows:

1. Differences in chemical composition
   a. Percentage of modifier combined with acrylonitrile
   b. Kind of modifier
   c. Method of incorporating the modifier
   d. Combinations of a, b, and c
2. Differences in spinning methods
   a. Dry spinning
   b. Wet spinning from organic solvents
   c. Wet spinning from aqueous salt solutions

The first of the acrylics to reach commercial production was Du Pont's Orlon in 1950. It is based on polyacrylonitrile, "slightly modified" to give it high affinity for basic dyes.

Dynel was introduced by Carbide and Carbon Chemicals Corp. in 1951. It is a copolymer, composed of 60 per cent vinyl chloride and 40 per cent acrylonitrile.

Acrilan, Chemstrand Corp.'s acrylic fiber, was first marketed on a substantial scale in 1952. It is composed of 85 per cent or more of acrylonitrile; the balance is one or two substances to improve dyeability.

The most recent acrylic to be produced commercially is Verel, which was introduced last year by Tennessee Eastman Co. It is described as a "modified" acrylic, and its exact chemical composition has not been revealed.

Three other acrylics (or related synthetics) are scheduled to reach the commercial stage during 1958. Creslan, produced by American Cyanamid Co., is a copolymer of acrylonitrile with an undisclosed substance, in about an 85-15 ratio. Darlan, currently in pilot-plant production by B. F. Goodrich Chemical Co., is described by its

developers as a "dinitrile" fiber, and is a copolymer of vinylidene dinitrile and vinyl acetate. Zefran, a product of Dow Chemical Co., is a "nitrile alloy" fiber, and is made by blending acrylonitrile and a "hydrophilic, dye-receptive polymer."

Current productive capacity of the acrylics is estimated at 100 million pounds annually; this will be increased to between 185 and 200 million pounds by the end of 1958.

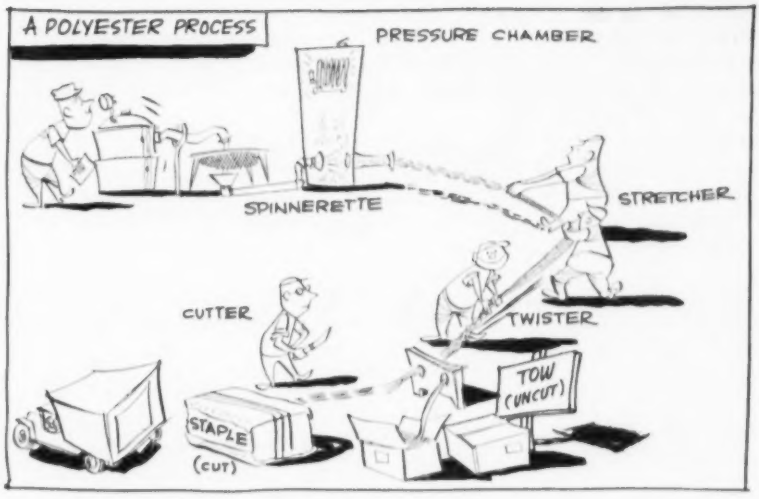
GLASS

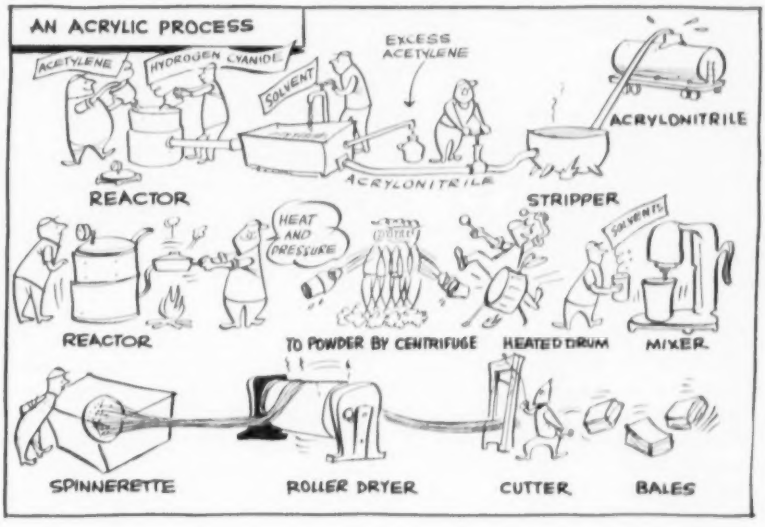
In compiling its statistical data on man-made fibers, the Textile Economics Bureau works on the following basis: "By definition, textile glass fiber is produced from a textile-type bushing in two principal forms, namely, continuous strand and staple sliver. It is collected from the bushing in an 'orderly' manner (as opposed to a heterogeneous or non-uniform manner) and includes continuous filament yarn and strand, staple yarn and sliver, roving, continuous filament mat (formerly chopped strand mat), and chopped and milled fiber. Conversely, textile glass fiber does not include glass wool, pack and industrial mat (i.e., fiber for air and liquid filtration, acoustical and thermal insulation, battery mats and separators, underground pipe wrap reinforcing mat and surfacing mat)."

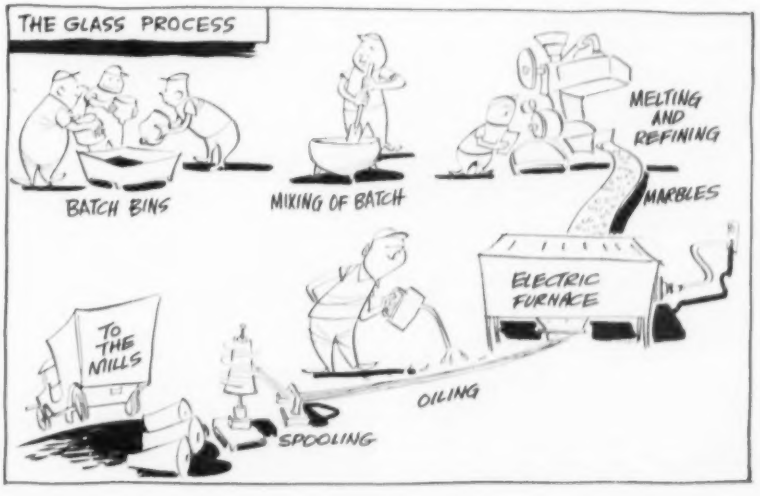
Since glass is a raw material known since ancient times, it is probable that the first glass fiber was made centuries ago. However, its development as a textile material is of comparatively recent origin. The first primitive machine for spinning glass fibers was demonstrated in England in 1841, but nothing came of the project. Then, at the Columbian Exposition of 1893, an American inventor exhibited a glass dress and other articles woven of silk and coarse glass yarns.

In 1931, textile fibers were first produced by extruding from a melt through spinnerets, and in 1938 the Owens-Corning Fiberglas Corp. began commercial production of glass yarns.

There are now four companies in the U. S. which produce textile







glass fiber as defined above, and production last year was estimated at 96.9 million pounds. Productive capacity of the industry is estimated at 115 million pounds annually, which is expected to increase to 160 million pounds by November 1958.

Glass has the highest density of all textile fibers. With its superior tensile strength, it plays a major role in industrial fabrics and for electrical insulation. Dimensional stability, flame resistance, and ease of laundering also are responsible for the use of large quantities of woven curtain and drapery materials made from glass yarns.

In staple form glass is an excellent heat and electrical insulator and is useful for air filtration, acoustical surfacing, and as a reinforcing medium in plastic laminates.

OTHER FIBERS

In addition to those listed on the previous pages, several other fibers are manufactured in the U. S. Most of them are produced in relatively small quantities, and go into more specialized uses.

Saran is the generic name for a series of resins based on vinylidene chloride, copolymerized with vinyl chloride. It was first introduced as a textile fiber in 1940 by the Dow Chemical Co.

Saran is used in the monofilament form for such materials as automobile seat covers, outdoor furniture covering, for screens, and for chemical filter cloths. It is also produced in multifilament form, and as a coarse staple fiber for conversion into spun yarns for upholstery fabrics and carpeting.

Saran is particularly outstanding for resistance to staining and ease of stain and soil removal. Resistance to dyeing by presently known methods has necessitated its manufacture in spun dyed form.

Saran is produced in one or more forms by seven companies in the U. S. Latest available estimates are that productive capacity is about 35 million pounds annually. No figures are available for consumption of saran in all its forms; however, 13.5 million pounds of monofilament were used in broad woven goods (12 inches or wider) in 1956.

Vicara is the only protein fiber made at present in this country. It is produced from zein, or corn protein, by the Virginia-Carolina Chemical Co.

Vicara occupies a comparatively small place among the man-made fibers, but has achieved prominence in a few selected apparel fabrics and as a blending fiber with fur in hats. It has low strength, particularly when wet, but it blends well with both man-made and natural fibers, dyes easily, and imparts a luxurious, cashmere-like hand to woven and knitted fabrics. In blends with nylon staple it attained considerable popularity in sweaters a few years ago, and more recently has been used in combination with the acrylic fibers.

Capacity for the production of Vicara is estimated to be about 21 million pounds annually, but only a small percentage of this capacity is currently in use.

Polyethylene is produced in monofilament form by five firms in the U. S. It is polymerized from ethylene gas under high temperature and pressure, and the melt is extruded through the orifices of a spinneret to produce the monofilament.

Polyethylene is the lightest of the man-made fibers, with a density less than that of water. Its extreme resistance to corrosion has made it useful in filter cloth and other industrial fabrics. It is also used for cords, braids, shoe fabrics, upholstery, and handbag fabrics.

A comparatively recent development has taken advantage of polyethylene's property of shrinking in hot water. Fabrics woven with a polyethylene warp and a filling of a nonshrinkable fiber are treated with boiling water, which causes the fabric to pucker, giving a "3-D" effect. The effect is permanent.

Polyethylene monofilament capacity is estimated at about 42 million pounds annually, but development of the 3-D fabrics and improved types of polyethylene featuring high tenacity and abrasion and weather resistance are expected to lead to substantial increases in capacity as demand for the fiber increases.

Vinyon is a trademark of Carbide and Carbon Chemicals Corp. for a thermoplastic resin which is spun into a textile fiber by American Viscose Corp. It is a copolymer of vinyl chloride and vinyl acetate. The fiber becomes soft at temperatures over 150-160 F, and melts at about 300 F. Therefore its usefulness has been confined principally to certain industrial fabrics.

Current capacity for the production of Vinyon is estimated at about 3.5 million pounds annually.

Teflon is Du Pont's trade name for its fiber made from polymerized tetrafluoroethylene. It is highly resistant to heat, almost immune to chemical attack, and has the lowest coefficient of friction of any fiber.

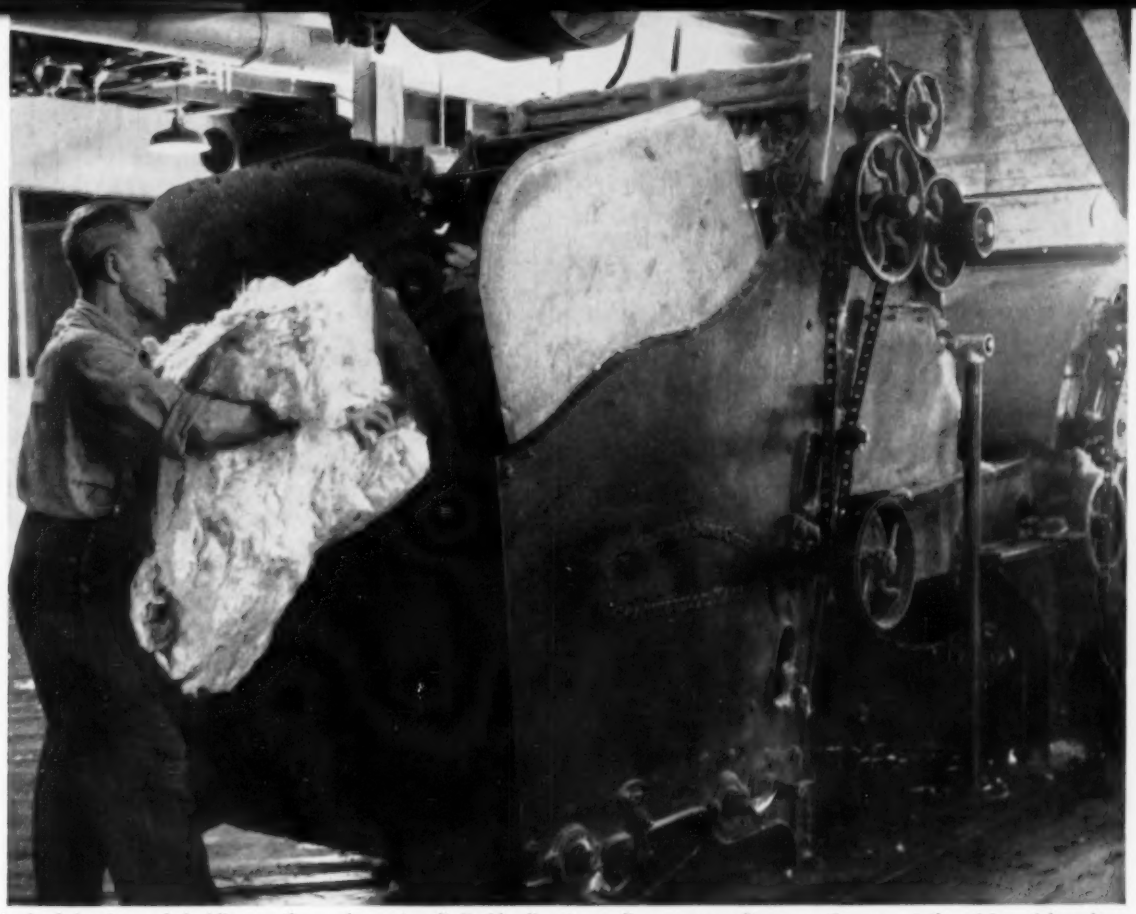
These properties have gained it an expanding niche in numerous industrial applications where other textile materials are inadequate.

Fiberfrax is a ceramic fiber made by the Carborundum Co., and spun into yarn from a blend of 80 to 85 per cent long staple ceramic fiber and 15 to 20 per cent organic fiber.

It is said to be capable of continuous service at temperatures above 2000 F. Although the organic carrier fiber is of course destroyed at such temperatures, the yarn or fabric nevertheless retains its form and insulating value.

Other man-made fibers currently produced in the U. S. include monofilaments of polystyrene, acrylonitrile-styrene, and plasticized polyvinyl chloride.

"Vinylon" is the generic name for fibers made of polyvinyl alcohol. It was first developed in Japan, and is produced there by several companies. Although none is produced commercially in the U. S. at present, at least one chemical company is reported to have shown interest in exploring its potential manufacture.



Lack of drawing and doubling on the woolen system limits blending to carding or precarding operations, as at the mixing picker above.

How mills run synthetics

Results of a survey of practices in cotton-, woolen-, and worsted-system plants

Staff prepared Exclusive

WHILE some mills are designed for processing synthetic staples, most plants using the cotton system in processing those fibers are modified or converted cotton mills. And by and large the plants adhere closely to the original equipment and layouts. As usual there are about as many methods as there are plants.

Management in those plants observes the theory that the best blending takes place as early in the process flow as is possible. To exercise this theory (some may call it an axiom) the plants have adopted varying systems of blending. Merge numbers are observed religiously.

Regardless of how elaborate or simple the blending systems appear, they are designed to give the customer what he wants. The systems are further influenced by the amount of changing management wishes to make — whether to go overboard for synthetics or to remain fairly in the middle between cottons and synthetics. That explains in part the lack of uniformity from mill to mill.

Changes Management Would Make. One thing does stand out: The mill men are using the systems they like. When queried as to what changes management would make in the systems if given a blank check, most of the executives replied that the situation was just about what they wanted.

Now and then there were relatively minor changes suggested, some of which are worthy of note.

The synthetics operations should be separated from other operations such as the manufacture of cotton goods. It is extremely difficult to control relative humidity properly with part of the plant running on cotton. This condition is a bit balky throughout the plant, and is especially trying where static is in-

volved. Contamination of one fiber by another is another tricky problem.

Another suggestion was that of adequate space. The cleanout cost between blend changes runs into real money. The extra materials handling brought on by frequent stock changes at the blending equipment is also a sore point. The ideal of course would be a balanced operation which requires no changing; but in the absence of that situation, management sometimes longs for enough opening space and equipment to allow simultaneous running of several mixes through the blending and opening rooms. Bins for storing stock also are desirable.

It would be next to impossible to create a composite plant from the information gathered in this survey. The mill men are not wishing for any one type of operation, any one type of equipment in given departments. They remain individualists to the core in their choices of equipment and processes.

Of the number of plants studied, no two were using the same blending procedures. While in some cases the differences were slight, the differences usually were there for very good reasons.

The old saw about the customer always being right seems still to apply. Some of the elaborate blending systems were designed specifically to give the customer a near-perfect blend. On the other hand some of the simplest systems were meeting customer demands. Either way, the customer seemed to be getting what he demanded; and his demands determined the plant's approach to blending.

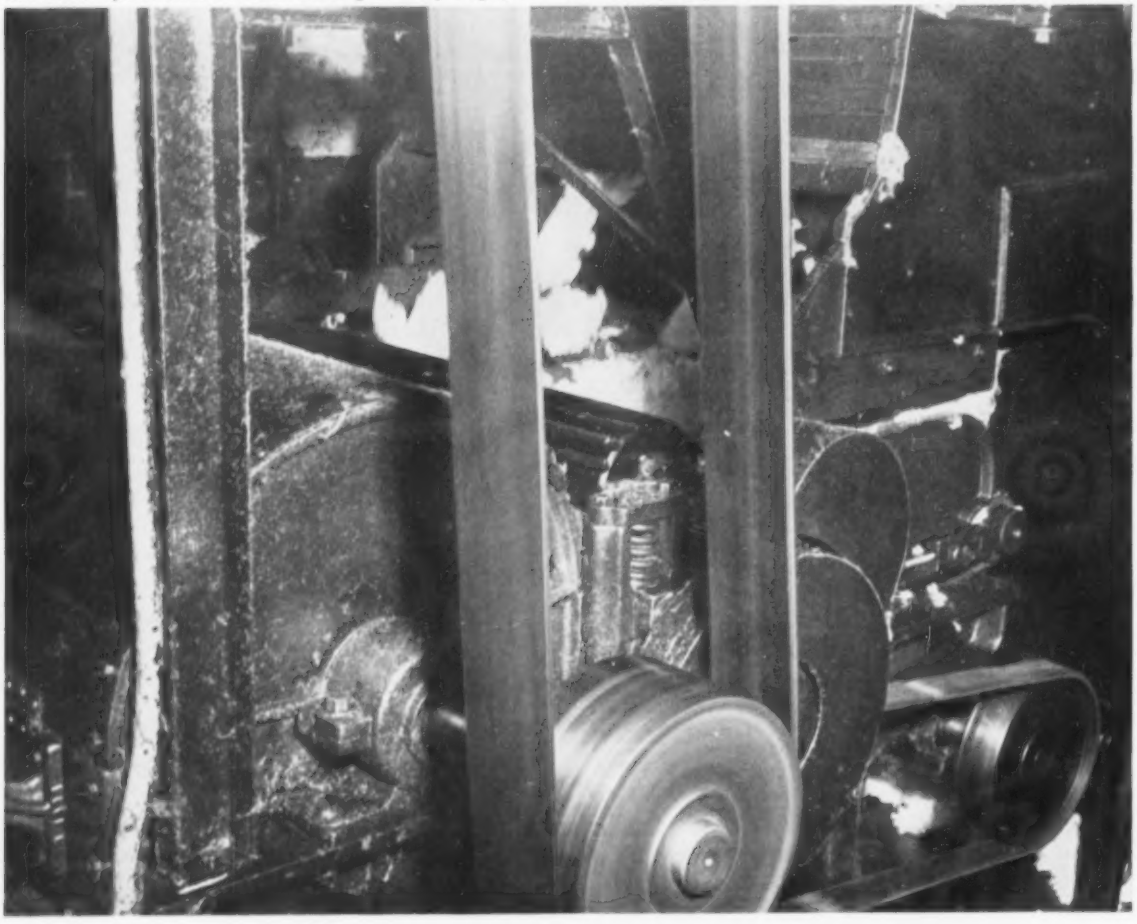
Naturally there is some contention between the plant and the buyer about commodity price, especially in those instances in which the buyer fails to recognize that elaborate blending is an expensive operation.

The fibers being blended range from most of the synthetics through wool and cotton; and in no cases were there distinctions drawn between the processes being used and the fiber being processed. The systems were designed to accommodate all the fibers the plant anticipated using without necessitating changes in techniques.

THE COTTON SYSTEM

Blending and Opening. Among the blending practices in use is one in which a blending room is separated from the opening room. Four blending feeders are arranged to discharge onto a common con-

The cotton system lends itself to blending at many stages, but as in the opening line below, intimate blending precedes carding.



veyor belt. Before these four hoppers is laid a mix containing a complete customer lot. (The plant refuses to accept a single lot too large for the blending operations.)

Thus if the mix is to be a 50-50 blend of Orlon (1½", 2 and 3 denier) and wool (62s or 64s cut to 1½"), the bales are arranged in even groups before the four hoppers. The bale weights are used to proportion the mix, and the bales are set in the group in the correct quantities (poundwise) of Orlon and wool. The stock is peeled, sandwiched, and fed from each bale group into the hopper reserved for that group. Operative skill is relied upon to keep the bales fed down evenly.

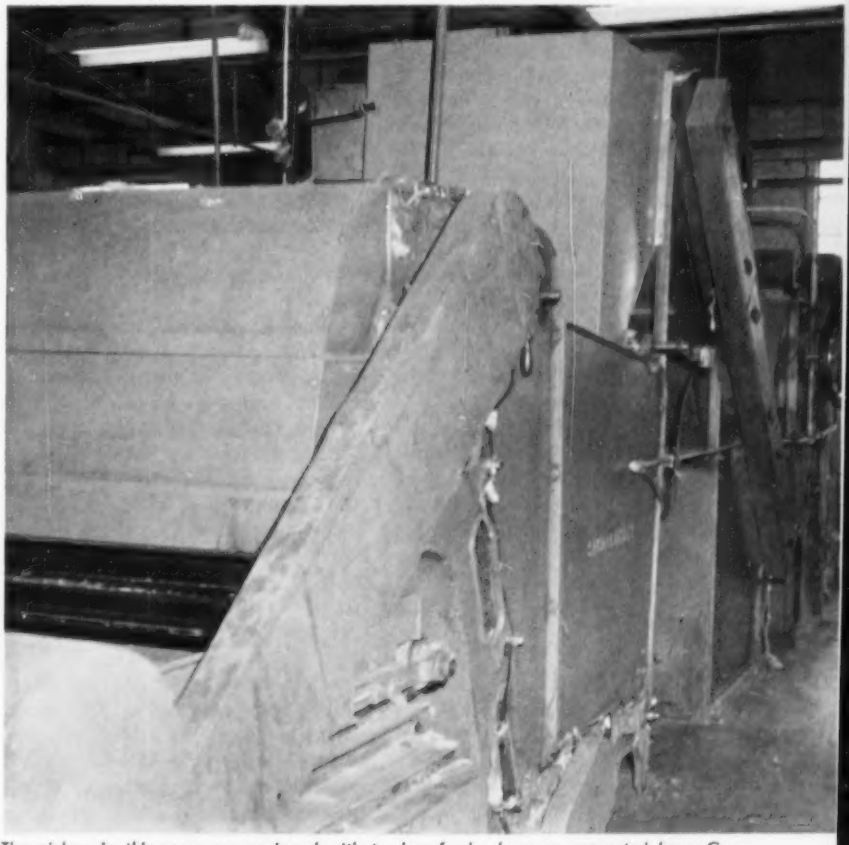
The stock as it is discharged from the hoppers is dropped onto the conveyor belt which transfers the stock to wheeled boxes, enough being used to hold the entire lot. Once the bales are fed through the hoppers, the boxes are arranged in groups in front of the hoppers and the stock fed from them through the hoppers again. The process is repeated three times—the entire range is cleaned thoroughly after each lot is blended.

The boxes holding the mix are sealed under covers to prevent contamination and stored until the lot is scheduled for the opening process. Once scheduled to be opened, the stock is piled in front of a bale breaker which feeds into a bale mixing feeder. The latter machine is adjustable between wide limits to permit the feeder to return to the bale breaker a portion of the stock delivered to the feeder. In this case the feeder is returning 70% of the stock to the bale breaker. In doing so the feeder further opens and mixes the stock and prevents any run-out taking place until the last of the stock is fed into the hopper from the stock heap kept on the floor.

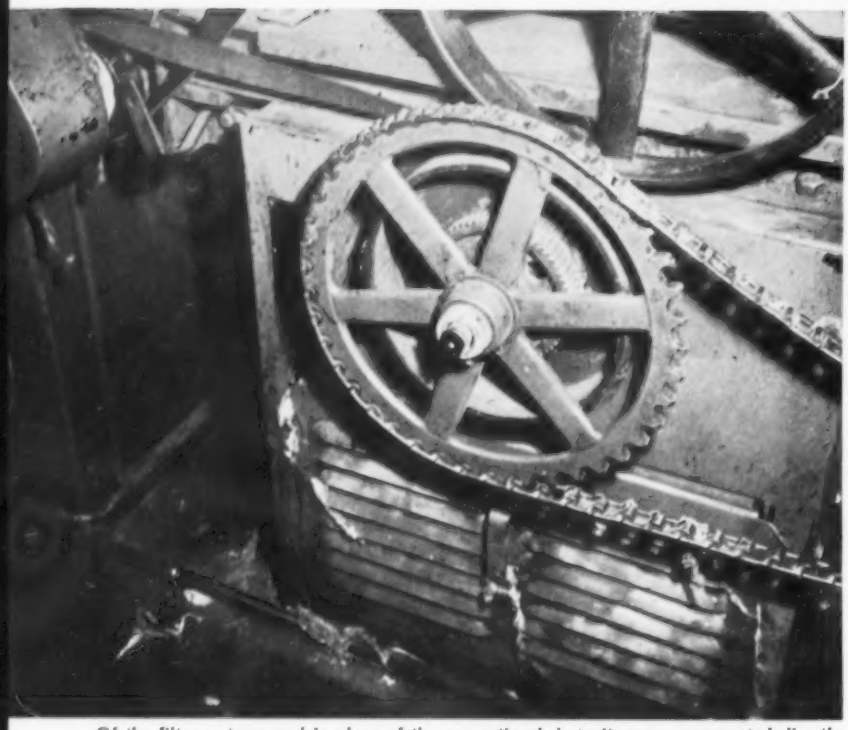
A single-beater picker section receives the stock from the bale mixing feeder, processes it through 20" diameter lag beater, and releases it into an air line which transfers the stock to the picker room. No blending is done from this point. The same procedures are used for all fibers, even 100% Orlon.

It has been noted by an author-

The blends sent through the room above are passed three times through the line of feeders. Fiber-to-fiber intimacy being desired, even 100% Orlon is given the same treatment.



The pickers in this room are equipped with tandem feeder hoppers, separated by a Centrif-Air machine. The cotton system is adaptable to a great number of such variations.



Of the filter systems used in place of the conventional dust pit, some are mounted directly on the pickers. This one has a chain drive to speed the screen for faster waste removal.

ity on synthetic fibers that the usual practice of processing wool on the cotton system is to use it in cut top form. In cutting fibers comprising a discontinuous strand such as wool top offers, the bulk of the cut fibers will be shorter than the specified length. Consequently it is considered necessary, or advisable, to cut the wool fibers slightly longer than the fibers with which it is to be blended. The fibers are prepared separately, then blended.

It is recommended that the blending be done before picking; and it is noted that a satisfactory preopening of the wool can be secured by using a finisher picker. Blends up to 50% wool and rayon can be processed satisfactorily on cotton mill machinery, restricting wool oil content to 2 or 3%.

ONE PLANT operating on a 50-50 blend of viscose and acetate lays out two identical blends. From these blends are weighed 25-lb quantities of each fiber. The weighings are sandwiched in a basket large enough to hold the resulting 100 lb comfortably. Each basket of stock is consigned to one hopper, but only after that hopper has exhausted its previous charge of stock. The feeding is on a staggered basis to assure an adequate discharge of stock from the opening line at all times.

In one plant the blend consists of 65% Dacron and 35% combed Egyptian cotton. The yarn counts are 40s, 50s, and 60s. Raw materials are prepared individually. The cotton is processed through opening, picking, carding, and combing; the Dacron, through picking and carding (fancy rolls are used). Blending is accomplished by passing the stock three times through three-over-four drawing, using nylon trumpets to aid in reducing the static.

The coarser counts are spun from 4.00 hank roving prepared on long draft roving frames. The finer counts are spun from 8″ x 4″ speeder packages of 5.00 hank roving. The long draft roving frames prepare the 2.60 hank roving used in the speeders. All spinning is done from double roving.

Another approach in use is that of a weighed sandwich. The stock to be blended is taken directly from the bale and placed on a small hopper mounted on a platform scale. On the glass dial cover are black marks to indicate the pointer position for each successive quantity of the mix being prepared.

The operator needs only to remove the stock from the first bale and place enough of it on the scale to move the pointer to the first mark on the dial. He then removes the stock from the second bale and places enough of it on the scale to move the pointer to the second mark.

He repeats this with each addition to the sandwich, moving the pointer another graduation until the sandwich is completed. The hopper is lifted from the scale and the sandwich dumped into the feeder hopper. A trunk line moves the stock from the feeder hopper to a second hopper which prepares it for the delivery to the pickers.

One plant operating entirely on synthetic staple uses chiefly 2″ staple of 3-denier viscose rayon and acetate. Since the blend is to be cross dyed it must be controlled closely, within 1½%, to prevent cloudiness in the dyed yarns. The blend is processed to offset minor differences in dyeing qualities found among fibers within the same bale, and between bales of the same merge number.

Blessed with ample room, this plant lays out a filling mix large enough to last two weeks. Using bale weights as a guide, the 50-50 mix is laid on the blending room floor in groups of bales, each group being assigned to a specific hopper. The stock is peeled from the bales in sheets, sandwiched and fed into blending hoppers equipped with automatic weight controls. The plant finds that one pass through the above blending line is sufficient, so the blending ends there.

As each mix is exhausted in the blending room, the stock is broken out in the plant and another lot started through. On such things the success or failure of some blends depends. Not all blends must be guarded with such care, however.

One plant processes synthetic blends on the cotton system, and runs the synthetics side by side

with the cotton in process without making the first change in the blending system. The blending and care of the stock through the plant are given no more consideration than are two different lots of cotton being processed simultaneously.

AUTHORITIES on synthetic fibers agree that different fibers are blended to give a desired fabric hand or to permit cross-dye effects, and that the more intimate blends can be best accomplished while the staple is in a loose form prior to the carding operation.

This makes sense in that the materials, although they look much alike, differ in such qualities as surface characteristics, specific gravity, and the degree to which they are opened when ready for the blending operation. Such differing qualities do not permit the ease of mixing which is enjoyed in blending similar or identical materials. Viscose and acetate are not exceptions.

A further point of agreement is that the best of blends cannot be obtained at the drawing if the fibers have different dyeing characteristics. The object of blending in general is to arrange, in theory at least, the fibers in cross section in the same proportions they are set down in the blending rooms. Drawing gives too many "cores" to accomplish this aim properly. Many blends permit it however.

It has been established that a 50-50 blend of viscose and acetate can vary no more than 2% without dye bands appearing in cross-dye effects. Consequently any such aids as a finisher picker for lap-blending or two shuttles picking alternately are suggested as means of avoiding those dye-streaks.

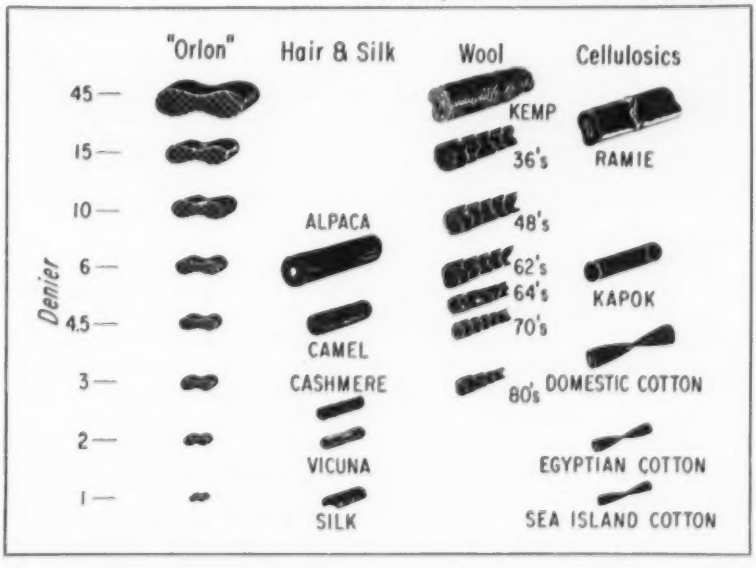
In the opening line in another plant are four blending hoppers of the automatic weighing type, and a single waste hopper. All stock, regardless of fiber, staple or denier, is processed through this one line which serves as a blending and opening line.

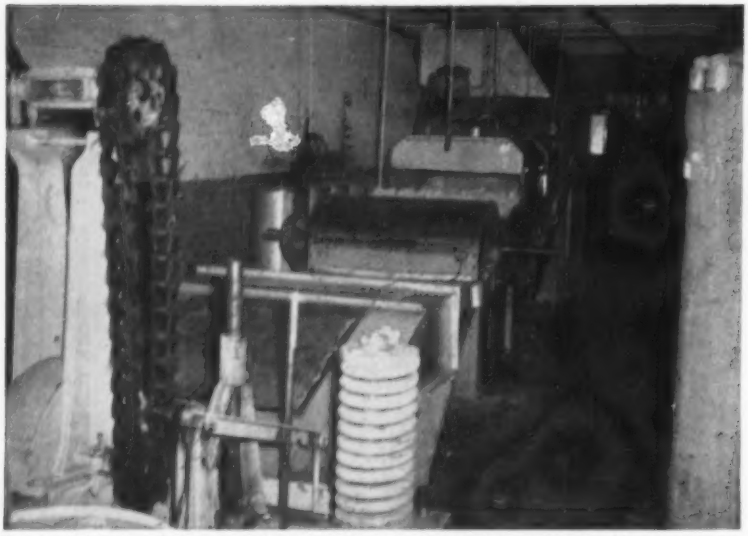
Approximately 50,000 lb of stock make up a normal week's run. This stock is trucked in weighed quantities to the opening room and placed before the hoppers in the proportions required by the blend. The feeding is done from the bales by sandwiching the stock and then passing it into the hoppers. The metered stock drops from the hoppers onto a belt conveyor which passes it under sprayers which apply the identification tint. The stock is then dried in process under infrared lights and passed to the pickers. There is no further blending except under unusual circumstances.

For fibers of widely different specific gravities the stock is processed separately through one-proc-

This mass of rayon, some of which is stock dyed, is to be fed into the second line of blending equipment in a plant which specializes in blends of all types.

Comparison of Orlon acrylic fiber with other fibers.
Courtesy E. I. du Pont de Nemours & Co., Inc.





The procedures used in some plants require that the stock be treated with an antistatic compound immediately after blending, and cured in bale form. The hood, which can be seen just above the beater section in the center of this photo, houses the spray nozzles through which the antistatic agents are applied. The chain assembly in the left foreground is part of the bale press into which stock from this line of machinery is dumped, eliminating need for manual handling. In the lower photograph, stock oil is being applied with a unit which also is used for applying tints. This process is taking place as the stock leaves the line of blending feeders.

ess pickers. The laps from these pickers are placed in the creel of a finisher picker which blends four laps into a finished package. The laps are placed in the creel in the proportions required by the blend. With this system of processing the fibers, they do not separate into colonies of different specific gravities.

Making picker laps containing as much as 65% Dacron can pose some real problems in bulk. At one plant the picker lap lengths are cut in half. When this blend reaches the drawing, a special guide or condenser is used between the first and second drawing rolls to condense the web before it is introduced to the front roll bite. No attempt is made to kill the static.

ONE FIRM uses two lines of opening equipment, arranged in tandem. Blending natural and synthetic fibers, and synthetics with synthetics, this plant lays the mix on the floor (relying on bale weights to give the needed control) with the bales grouped in 50-50 or 60-40 order before the five blending feeders. Feeding is a simple matter of peeling from each of the bales consigned to a given hopper and stuffing the resulting sandwich into the feeder.

From the line of five feeders the stock drops onto a conveyor and is carried to a second line of feeders. The stock in these hoppers is maintained automatically at a constant level. To assure added rolling and tumbling in these five hoppers, management has sealed off the feeding opening in the lower front of the hoppers and stock is dropped into the top of the hoppers.

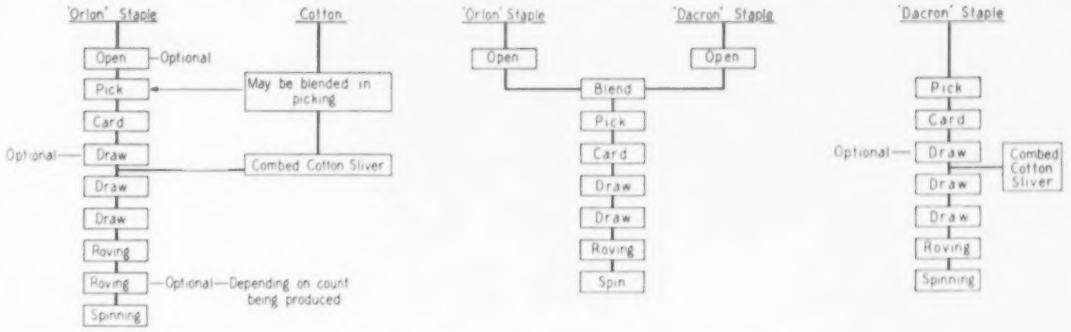
If the supply for these hoppers begins to fail, the delivery from the second line of hoppers to the bale presses is stopped until the supply again overtakes the second line. Otherwise the second line of hoppers would be operating without a maximum load of stock, and to management at this plant, that condition is strictly taboo. On such small items of control is built the firm's success in the blending field.

The blended stock is sent directly to bale presses for preparation in 500-lb bales. These bales are stored for 48 hours to allow the stock oil (added only to stock-dyed staple) to even out.

THE USE of the dust pit in some plants has been abandoned in favor of filters. Some of these are in the form of bags mounted away from the pickers. Others are in the form of filters built into the pickers. In one such case the ratchets formerly used to turn the filter screens have been replaced with chain drives to permit more rapid removal of the waste.

The units are used for cottons, both natural and stock dyed, and for synthetics blending. To further effect opening, cleaning, and blending, the firm has installed tandem hoppers on the three-beater pickers. Between the hopper sections there is mounted a Centrif-Air machine. Kirschner beaters with "bullet nose" spikes also are used, but are not necessarily

Suggested Process Flow Sheet for Blending Specific Fibers on the Modified Cotton System



standard.

ONE PROBLEM in blending cottons and synthetic fibers is that of the often wide differences in cleanliness between the two fibers. This difference suggests that the more successful operations will see the cottons and synthetics scheduled through separate cleaning operations prior to blending. Otherwise dirty yarns will result.

If the fibers have similar dyeing properties they can be blended on the drawing. It is recommended that three processes be used, however.

There is evidence that yarns produced from blending at the drawing have higher strength and better appearance than when blending is done prior to carding.

The mill should test various fiber lengths before going overboard for any one combination. There are critical differences between the fiber lengths of the cotton and the synthetic staple which must be avoided if quality yarns are to be spun.

Usually the synthetic staple is longer than the cotton, although just how much longer it should or can be is largely a matter of conjecture. The fiber manufacturers are most helpful if called in on such problems.

For instance from the book, *Rayon Technology*, compiled by the American Viscose Corp., is taken this advice: "Satisfactory yarn can be spun if the specified length of the cotton is not over ¼" shorter than the rayon length. As a matter of fact, it has been proved advantageous to use rayon that is slightly longer than the cotton. In the case of combed cotton, where apron spinning is available, this difference can be larger, and satisfactory yarns have been spun using 1⅛" or 1 1/16" combed cotton with 1 9/16" uncombed rayon."

Picking. Still another approach is the time-tested one of blending all fibers at the finisher picker. The plants using this method prepare laps of the pure fibers and blend them in the proper proportions by inserting the pure laps, in the ratio required by the blend, into the picker creel. The finished lap has a fiber distribution which, under differential dye tests, shows almost perfect uniformity. However, the system has its limitations, and is really not in wide use — the materials handling costs are too high in some cases for mill men to go overboard for it. But it is an answer to blending fibers requiring different degrees of cleaning. Within some of the plants processing both synthetic fibers and cotton, either in blends or in the pure state, there is a tendency to keep the pickers ready for use on either fiber. Those plants make no changes in the picker except to adjust it for the differences in stock feeding characteristics. The screens are left intact, although on synthetics the cleaning action of grid bars is not needed to the extent demanded by cotton. The pickers in use range from one-beater two-process to three-beater one-process. The pickers operate on staples up to and including 3" fibers.

One plant which blends at the pickers has equipped with solid screens those pickers consigned to pure synthetic laps. All pickers are used for making synthetic laps if the production schedule begins to "pinch."

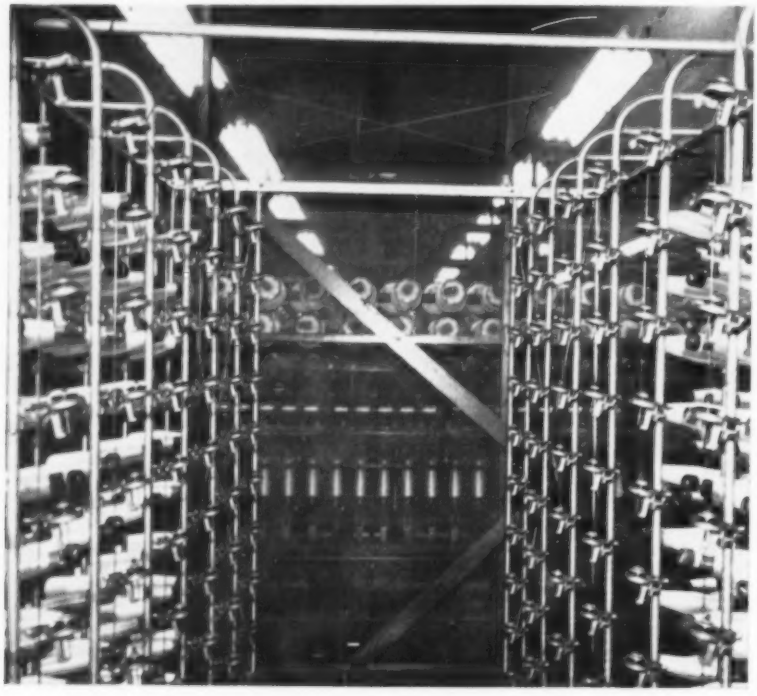
Tints, Oils, Antistatics. Tinting is done for identification purposes. The methods used are generally the same, although the equipment varies from simple to elaborate. Usually tinting is accomplished while the stock is in passage between the blending and actual opening and picking process. If the firm is using "short form" blending techniques, tinting is done in the feeder or picker hoppers. If the firm processes alternate lots of natural and tinted staple, the tinting is done at the picker sometimes to limit the area over which the tinting compounds will spread.

If tinting is done in a stock line, a special-built unit, usually available commercially, is installed.

Hopper tinting is often done with shop-built equipment; and to prevent excessive wetting the spray units cut off when the hopper quits feeding. Wet stock cards stubbornly, and since a number of plants permit no stock curing time in bale form, the laps are kept as dry as adequate tinting will permit. In numerous plants the only curing the stock gets is while the picker lap is stored between picking and carding, and this wait is not scheduled as curing time.

Some plants prefer to add the stock oil during the blending process and to bale the stock for a period ranging from one day to

To prevent cross contamination of the fibers in process, some plants have screened off sections of the mill. A polyethylene film is used in the top picture to segregate the blending room. In the lower picture a plastic mesh screen is used to offer floor-to-ceiling protection for the two processes visible in the picture.



three days. The actual waiting time is likely to be at the mercy of the operating schedule — if the stock is needed badly, the curing time is likely to disappear. In practically every case involving the addition of stock oil, the stock has been dyed.

There is an adequate amount of lubricant applied to synthetic fibers by the fiber producer — adequate from the standpoint of static control and drafting ease—so additional oil is rarely needed. At only one plant studied is stock oil added to an undyed blend. This plant also mixes its tints with the stock oil and applies the solution to stock-dyed blends.

Anti-static agents are applied chiefly at those plants processing solution-dyed fibers. Natural stock as it is received at the plant is treated to combat static if the humidity is maintained at the proper level. Solution-dyed-fibers apparently require further treatment.

Not all plants tint the fibers. Some prefer to schedule natural fiber to run through the plant between lots of stock-dyed colors. The natural stock is kept segregated by keeping the untinted stock separated by discreet distances (both space and time). Others operating on untinted fibers rely on chalk marks to keep the stocks separated. At least one plant uses a card system which permits colored cards to be taken up as the lot they are guarding passes through the various processes.

Static is always a problem, although most of the plants have learned to live with it and do not get excited when it begins to act up. The humidity values in each plant have been worked out to give management a measure of control over that quantity, though this is not easy when cottons are processed simultaneously with synthetics. Static eliminating devices are not in great use. One mill remarked that there were some on hand which could be "broken out" if needed.

Humidity. A listing of the humidity values reported by the plants would be meaningless without a detailed report on each plant's operations and the reasons advanced for using a particular relative humidity value. The R.H. values reported in opening, picking, and carding ranged from 45% to 55% with the latter figure being the one most quoted. Usually the plants prefer to quote the range of such values; for with static always hovering about, a measure of flexibility in humidity settings is kept. The R.H. values being used in spinning approximate those already given for opening, picking, and carding, the range reported running from a low of 40% to a high of 55%.

Although weaving of pure synthetics, or blends of them, can be carried out with R.H. values in the low 70's, some of the plants are "bothered" with the presence of cottons and synthetics in the same weave room. In such instances a compromise has been reached which will permit a measure of weaving satisfaction. Here again a listing of humidity values would be useless without corresponding lists of temperatures, yarns, cloth

TABLE I

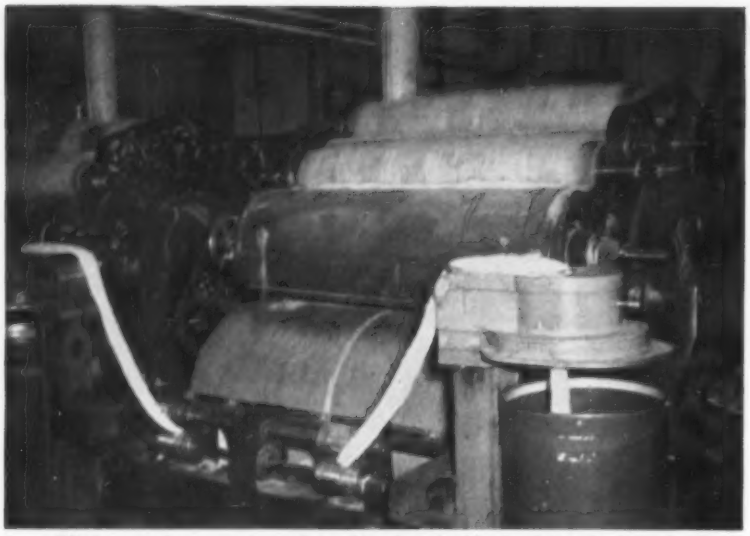
FIBER MANUFACTURERS' SUGGESTED SETTINGS (INCHES) FOR REVOLVING FLAT CARDS

	Tenn. Eastman Corp., Acetate and Viscose	DuPont Nylon 1.5 denier 1½"	DuPont Nylon 3.0 denier 1½" & 2"	DuPont Nylon 15 denier 3"	DuPont Orlon 1.0 denier 1½"	DuPont Dacron-Rayon**	The Chemstrand Corp. Acrilan 2, 3 & 5 denier 1 9/16", 2" & 2½"		
Licker-in to cylinder	.010	.007	.007	.007	.007	.007	.007		
							Denier	Staple (inches)	
								1 9/16	2	2½
Doffer to cylinder	.010	.005	.005	.007	.007	.007	2	.005	.005	.005
							3	.007	.007	.007
							5	.007	.007	.007
Feed plate to licker-in	.012	.010	.010	.017	.012	.012-.034	2	.012	.012	.022
							3	.017	.022	.022
							5	.017	.022	.034
Production, lb/hr	*	——	——	——	——	——	2	14	7	4
							3	12	11	9
							5	10	11	11
Cylinder screen, front	1/16" to 1/8"	.187	.187	.187	——	.187	.187			
Cylinder screen, back	.020	.029	.029	.029	——	.034	.022			
Cylinder screen, middle	.030	.068	.068	.068	——	.068	.064			
Front top plate	.022	.022	.022	.022	.022	.022	.29			
Front bottom plate	.029	.034	.029	.034	.034	.029	.34			
Back top plate	.020	.022	.029	.029	.029	.022	.029			
Back bottom plate	.029	.022	.029	.029	.022	.029	.034			
Doffer comb to doffer	.029	.010	.010	.015	——	.015-.022	.012			
Licker-in speed	350-440	600	600	600	330	350-400	380			
Licker-in screen	Solid	Solid	Solid	Solid	——	Solid	——			
Licker-in type	Synthetic (No. 1 rayon wire)	Synthetic	Synthetic	Synthetic	——	Synthetic	Synthetic (No. 1 rayon wire)			
Doffer speed	——	6-20	6-20	14.5	4.5	8-14	——			
Doffer wire	——	110	110	100	120	100-120	110			
Cylinder speed	165	165-170	165	165	170	165	165			
Cylinder wire	——	100	100	90	110	90-110	100			
Sliver weight, gr/yd	——	40-50	50	70	42	50-60	——			
Licker Screen Settings										
Nose	——	.187	.187	.187	——	.187	——			
Bar	——	——	.170	——	——	——	——			
Front	——	.029	.029	.034	——	.029	——			
Flats to cylinder (front to back)	.010	.010	.015	.018 .020 .024 .026	.007 .007 .009 .009 .009	.012 .022	.010			
Fancy roll speed	——	1700	1565	1700	1550	——	——			
Fancy roll depth	——	1¼"	1¼"	1¼"	1¾"	——	——			
Flats speed	1 flat per minute	1.67 inches per minute	1.67 inches per minute	1.7 inches per minute	3 feet per minute	2-3 inches per minute	3.75 inches per minute			

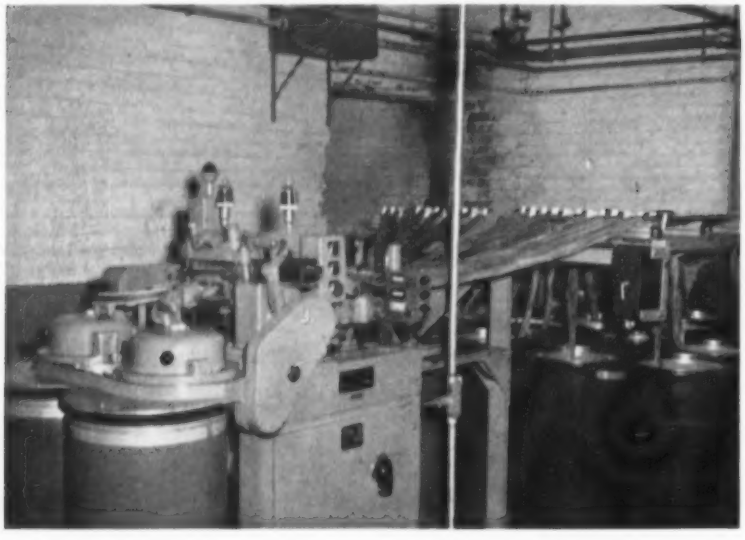
*Tennessee Eastman Corp. suggests that a production of 12 to 14 lb per hour can be expected for the 3-denier and coarser fibers. It is urged that carding rate be reduced if a blend contains more than 25% of 1.5 denier viscose or 2-denier acetate to increase cleaning. The carding rate on 100% 1.25 or 1-denier viscose should not exceed 6 lb per hour.

**This information is taken from Bulletin D-81 prepared by the E. I. duPont de Nemours & Co., Incorporated: ". . . Currently 'Dacron' staples of 3.0, 4.5, and 6.0 denier ranging in length from 1½" to 2½" are being blended with 1.5 and 3.0 denier rayon. Various combinations of denier and staple length are being used but usually blend components of uniform staple length process best. The yarn counts that are spun from a particular blend will depend on the average denier per filament and the staple length of the blend components. Generally, slightly finer yarns can be spun from blends containing more than 55% 'Dacron.' Blends containing 55% or more of 'Dacron' also give the best balance of fabric properties."

The data for this table were supplied by fiber manufacturers.



A modified worsted process is used in this plant to blend solution-dyed staple. In the top picture are shown worsted cards preparing sliver for the Pin Drafters in the lower photo.



styles, size formulas, etc.

Carding. Once the blends are established carding is done with the fewest changes possible. Apparently those firms which have adopted synthetics on a large scale have gone to the trouble to install licker-in wire designed for synthetics processing. This wire has its chief distinction in the angle at which the teeth are hooked, being less for synthetics than for cotton. The wire design is based on the premise that the synthetic stock requires less opening and cleaning than does cotton.

Card settings run the gamut from mill to mill as they do in cotton processing. Although the staple manufacturers as a group suggest card settings to be used in staple processing of their own manufacture, the mills by and large reported that the card settings remain essentially the same for all fibers. However, most of the plants were processing staple in the range of 1 9/16″ or less.

At one plant it was learned that 2″ synthetic staple presented so much carding trouble (flats loading) that the plant finally settled on a staple length which required no special card treatment.

Yet at another plant operating on 3-denier, 2″ staple no such problems existed. The plant uses synthetics licker-in wire, 100-pt cylinder wire, 110-pt flats wire, and sets the flats 0.010″ from the cylinder wire in all cases. Some plants are using solid licker-in screens.

Drawing. Drawing is accomplished largely on frames used for cotton processing. Sometimes it is necessary to remove the third roll from the front on five-roll drawing systems to accommodate the longer fibers. Otherwise, simply widening the roll settings is sufficient. Two-process drawing is used in some instances. Some plants remove the roll for drafting synthetics and replace it when running cotton.

Although the plants will avail themselves of the extra blending the drawing process gives, depending on the drawing as the mainstay of blending is generally taboo, especially if the fibers being blended dye in dissimilar manners. "Coring" was given as the chief reason for avoiding blending at this stage. Some cases of mock twist have turned up in place of the desired blending. And, it was pointed out that while on knit yarns the looping pattern a mock twist imparts to the fabric may be interesting, it is also demoralizing when making an unscheduled appearance. As a rule the plants are using metallic top rolls.

Spinning. Spinning changes necessary for operating on the longer staples are met in some of the plants by simply opening the roll settings. Other plants not equipped with drafting systems capable of being opened for staples in the vicinity of 1½″ have to decide between using shorter staples or converting the drafting systems. Fortunately some of the systems could be easily changed to slip draft. Some of the plants prefer 1″ back roll diameter, and a 1⅜″ front roll diameter.

Slashing. Slashing presents a hodge podge of formulas and techniques. Homogenizers have permitted some plants to switch from the synthetic size preparations to starch preparations. Others, by reducing the amount

(Continued on page 160)

Textile Industries

Properties and uses

		Rayon			Saponified Acetate "Fortisan"	Acetate	Cellulose Triacetate "Arnel"	Polyamide Fibers		Polyester "Dacron"		
		Regular	Medium Tenacity	High Tenacity				Nylon 66	Nylon 6		"Orlon"	"Acrilan"
Specific Gravity		1.53	1.53	1.53	1.52	1.33	1.3	1.14	1.14	1.38	1.17	1.17
Tenacity, grams/denier	Dry (70 F, 65% RH)	1.5-2.4	2.4-3.0	3.0-4.0	7.0	1.1-1.4	1.2-1.4	4.1-7.3	6.8-7.2	3.6-5.0	1.7-2.2	2.5
	Wet, % of dry	44-54	56-63	55-65	85	60-65	70	80-90	85-90	100	95	80
Tensile strength, 1000 psi (70 F, 65% RH)		29-47	47-58	58-78	138	18-23	20-23.3	58-114	99-105	64-89	26-33	50
Elongation at break, % (70 F, 65% RH)		15-30	10-20	9-20	6	23-30	25-40	15-45	21-25	22-48	25-35	36
Elastic Recovery (70 F, 65% RH)	% Recovery from % strain	82 30 2 20	82 30 2 20	82 37 2 15	82 67 2 5	94 23 2 20	88 43 3 10	100 8	100 4	97 80 2 8	97 75 2 8	99 [illegible] 2 [illegible]
Stiffness, grams/denier (70 F, 65% RH)		8.7	17	25	120	5.2	4.8-5.0	9-52	30	7-23	5-9	7
Moisture regain, %	70 F, 65% RH	11.5-16.6	11.5-16.6	11.5-16.6	10.0-11.5	6.3-6.5	3.2	4.0-4.5	4.5	0.4	1.0-2.0	1.24-1.5[illegible]
	Commercial	11.0	11.0	11.0	11.0	6.5	3.5	4.5	4.5	0.4	1.5	1.5
Effect of heat		Yellowing and rapid loss of strength at high heat; flammable; decomposes at about 350 F.			Similar to rayon.	Loses strength at 194-225 F; softens at 397-406 F.	Before heat treatment, sticking point is 350-375 F; after heat treatment, above 464F. Melts at 572 F.	Sticks at 445 F; melts at about 480 F.	Melting range: 414-428F. Slight discoloration when held at 300 F for 5 hours.	Sticks at 455 F; melts at 480 F.	Sticks at 455-480 F.	Sticks at 47[illegible] F; shrinks [illegible] at 487 F, 10[illegible] at 511 F.
Effect of sunlight		Long exposure results in strength loss.			Similar to rayon.	Similar to rayon; slightly lower per cent loss.	Long exposure results in strength loss.	Significant strength loss after long exposure, except special types. No discoloration	Loses strength more slowly than nylon 66; no discoloration.	Some loss of strength; no discoloration; better behind glass	Resistant.	Resistant.
Effect of chemicals	Acids	Less resistant than cotton; not harmed at low concentrations and temperatures. Disintegrates rapidly in concentrated acids and at high temperatures.			Decomposed by strong acids; resistant to weak acids.	Decomposed by strong acids; soluble in acetic acid.	Similar to acetate.	Decomposed by strong mineral acids; resistant to weak acids.	Same as nylon 66.	Resistant to most mineral acids; disintegrated by 96% sulfuric acid.	Resistant to most mineral acids; disintegrated by 96% sulfuric acid.	Resistant to most acids
	Alkalies	No effect with cold, weak alkalies; strength reduced with hot, weak alkalies. Swelling and loss of strength in concentrated alkalies.			Swelling and mercerization in concentrated alkalies; little effect cold.	Saponified; little effect from weak alkalies, cold.	More resistant than acetate; little effect up to pH 9.8, 205 F.	Little or none.	Same as nylon 66.	Moderate resistance, cold; disintegrated by strong alkalies at boil.	Moderate resistance cold; disintegrated by strong alkalies at boil.	Moderate r[illegible] sistance co[illegible] disintegrate[illegible] by strong [illegible] kalies at bo[illegible]
	Organic solvents	Resistant.			Resistant.	Soluble in acetone; swollen or dissolved by many organic solvents. Softened in alcohol.	Soluble in acetone, chloroform, and methylene chloride. Swelled by trichloroethylene.	Resistant; soluble in some phenolic compounds and in 90% formic acid.	Same as nylon 66.	Generally unaffected; soluble in some phenolic compounds.	Unaffected by common solvents.	Unaffected by common solvents.
Dyestuffs used		Direct, developed, azoics, and vats.			Same as rayon.	Disperse, and some azoics.	Same as acetate.	Disperse, neutral-dyeing metalized, acid-dyeing metalized, chrome, some directs.	Same as nylon 66.	Disperse, developed (azoic).	Disperse, basic, acid.	Disperse, basic, acid, acid- and n[illegible] tral-dyeing metalized, chrome.
Uses[4]		1, 2, 3, 4, 5, 6, 7			4, 7	1, 2, 3, 4, 5	1, 2, 4, 7	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6, 7	1, 2, 4, 7	1, 2, 4, 7	1, 2, 3, 4, 7

1 Plant under construction—production late next year.
2 Pilot plant production.
3 Plant under construction—production early next year.

4 Uses:
1. Apparel
2. Upholstery and drapery
3. Floor coverings
4. Other home furnishings
5. Bonded materials
6. Tire cord
7. Other industrial uses

Compiled from infor[illegible] synthetic fibers, supp[illegible] of Textile Fibers," a[illegible]

Properties and uses of fi

	Rayon			Saponified Acetate "Fortisan"	Acetate	Cellulose Triacetate "Arnel"	Polyamide Fibers		Polyester "Dacron"	Acrylic			
	Regular	Medium Tenacity	High Tenacity				Nylon 66	Nylon 6		"Orlon"	"Acrilan"	Dynel	
Gravity	1.53	1.53	1.53	1.52	1.33	1.3	1.14	1.14	1.38	1.17	1.17	1.30	
Dry (70 F, 65% RH)	1.5-2.4	2.4-3.0	3.0-4.0	7.0	1.1-1.4	1.2-1.4	4.1-7.3	6.8-7.2	3.6-5.0	1.7-2.2	2.5	2.5-3.3	
Wet, % of dry	44-54	56-63	55-65	85	60-65	70	80-90	85-90	100	95	80	100	
ngth, 1000 psi % RH)	29-47	47-58	58-78	138	18-23	20-23.3	58-114	99-105	64-89	26-33	50	50	
at break, % % RH)	15-30	10-20	9-20	6	23-30	25-40	15-45	21-25	22-48	25-35	36	30-42	
overy (RH)	% Recovery from % strain	82 30 2 20	82 30 2 20	82 37 2 15	82 67 2 5	94 23 2 20	88 43 3 10	100 8	100 4	97 80 2 8	97 75 2 8	99 67 2 10	97 2	
ss, grams/denier 0 F, 65% RH)	8.7	17	25	120	5.2	4.8-5.0	9-52	30	7-23	5-9	7	8.2	
70 F, 65% RH	11.5-16.6	11.5-16.6	11.5-16.6	10.0-11.5	6.3-6.5	3.2	4.0-4.5	4.5	0.4	1.0-2.0	1.24-1.59	less than 0.4	
Commercial	11.0	11.0	11.0	11.0	6.5	3.5	4.5	4.5	0.4	1.5	1.5	0	
at	Yellowing and rapid loss of strength at high heat; flammable; decomposes at about 350 F.			Similar to rayon.	Loses strength at 194-225 F; softens at 397-406 F.	Before heat treatment, sticking point is 350-375 F; after heat treatment, above 464F. Melts at 572 F.	Sticks at 445 F; melts at about 480 F.	Melting range: 414-428F. Slight discoloration when held at 300 F for 5 hours.	Sticks at 455 F; melts at 480 F.	Sticks at 455-480 F.	Sticks at 473 F; shrinks 5% at 487 F, 10% at 511 F.	Softens at 300-325 F; shrinks at temperatures above 240 F. Fire-resistant; does not support combustion.	F ti de ra 30 F fl ar
nlight	Long exposure results in strength loss.			Similar to rayon.	Similar to rayon; slightly lower per cent loss.	Long exposure results in strength loss.	Significant strength loss after long exposure, except special types. No discoloration	Loses strength more slowly than nylon 66; no discoloration.	Some loss of strength; no discoloration; better behind glass	Resistant.	Resistant.	Some loss of strength.	R
Acids	Less resistant than cotton; not harmed at low concentrations and temperatures. Disintegrates rapidly in concentrated acids and at high temperatures.			Decomposed by strong acids; resistant to weak acids.	Decomposed by strong acids; soluble in acetic acid.	Similar to acetate.	Decomposed by strong mineral acids; resistant to weak acids.	Same as nylon 66.	Resistant to most mineral acids; disintegrated by 96% sulfuric acid.	Resistant to most mineral acids; disintegrated by 96% sulfuric acid.	Resistant to most acids	Generally resistant, except to 25% chromic, 70% nitric, and 96% sulfuric.	R m
ffect of icals — Alkalies	No effect with cold, weak alkalies; strength reduced with hot, weak alkalies. Swelling and loss of strength in concentrated alkalies.			Swelling and mercerization in concentrated alkalies; little effect cold.	Saponified; little effect from weak alkalies, cold.	More resistant than acetate; little effect up to pH 9.8, 205 F.	Little or none.	Same as nylon 66.	Moderate resistance, cold; disintegrated by strong alkalies at boil.	Moderate resistance cold; disintegrated by strong alkalies at boil.	Moderate resistance cold; disintegrated by strong alkalies at boil.	Resistant, except to concentrated caustic.	R
Organic solvents	Resistant.			Resistant.	Soluble in acetone; swollen or dissolved by many organic solvents. Softened in alcohol.	Soluble in acetone, chloroform, and methylene chloride. Swelled by trichloroethylene.	Resistant; soluble in some phenolic compounds and in 90% formic acid.	Same as nylon 66.	Generally unaffected; soluble in some phenolic compounds.	Unaffected by common solvents.	Unaffected by common solvents.	Soluble in acetone and a few other solvents.	Sc wa un m co ve
nd	Direct, developed, azoics, and vats.			Same as rayon.	Disperse, and some azoics.	Same as acetate.	Disperse, neutral-dyeing metalized, acid-dyeing metalized, chrome, some directs.	Same as nylon 66.	Disperse, developed (azoic).	Disperse, basic, acid.	Disperse, basic, acid, acid- and neutral-dyeing metalized, chrome.	Disperse, neutral-dyeing metalized, some neutral-dyeing acid, some basic.	N in di so
	1, 2, 3, 4, 5, 6, 7			4, 7	1, 2, 3, 4, 5	1, 2, 4, 7	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6, 7	1, 2, 4, 7	1, 2, 4, 7	1, 2, 3, 4, 7	1, 2, 3, 4, 5, 7	1,

lant under construction—production late next year.
llot plant production.
lant under construction—production early next year.

[4]Uses:
1. Apparel
2. Upholstery and drapery
3. Floor coverings
4. Other home furnishings
5. Bonded materials
6. Tire cord
7. Other industrial uses

Compiled from information supplied by the synthetic fibers, supplemented by data fro of Textile Fibers," and "A.S.T.M. Standards

tember, 1957, presents

the man-made fibers

Textile Industries

rylic and Related Fibers					Glass	Saran	Protein "Vicara"	Poly-ethylene	Vinyl "Vinyon"	Tetrafluoro-ethylene "Teflon"	
	"Verel"	"Cresian"[1]	"Darlan"[2]	"Zefran"[3]							
	1.37	1.17	1.18	1.19	2.56	1.72	1.25	0.92	1.35	2.3	Specific Gravity
	2.5-2.8	2.5-3.5	1.75	3.5	7.7	up to 2	1.1-1.2	1.0-2.5	0.6-0.7	1.5	Dry (70 F, 65% RH) — Tenacity, grams/denier
	——	85-95	85	89	99	100	50	100	100	100	Wet, % of dry — Tenacity, grams/denier
	44-49	37-52	26.5	53	250-315	up to 44	17.6-19.2	11-30	10-12	42.7	Tensile strength, 1000 psi (70 F, 65% RH)
	33-35	25-30	25-35	33	2.5-3.15	15-25	20-45	20-60	10-13	21.2	Elongation at break, % (70 F, 65% RH)
	79 63 2 5	92 80 2 4	70 45 3 10	99 72 2 10	100 3	98.5 93 3 10	100 97.5 2 5	95 5	99 2	——	% Recovery from % strain — Elastic Recovery (70 F, 65% RH)
	8.0	9.5	11	10.6	300	8-12	2.8	2-12	5.8	7	Stiffness, grams/denier (70 F, 65% RH)
.4	3.5-4.0	1.5-2.0	2.2	2.5	0	0	10.0	0	0	0	70 F, 65% RH — Moisture regain
	——	——	——	——	0	0	10.0	0	0	0	Commercial — Moisture regain
00- aks re- s	Fiber properties begin to deteriorate rapidly at 266-302 F. Type FR extremely flame resistant.	Sticks at 554 F.	Softens at 340-350 F. Loses 30% of strength at 250 F, 50% at 300 F. Flammability similar to cotton.	Sticks at 490 F.	Nonflammable; loses 50% of strength at 685 F; softens at 1380-1550 F.	Softens at 240-280 F; melts at 340-350 F.	Loses strength at 350 F; softens at about 480 F.	5% shrinkage at 165 F; melts at 230-250 F.	Shrinks at 150 F; melts at 250 F.	Nonflammable; melts at 620 F.	Effect of heat
2	Resistant.	Slight loss of strength.	Resistant.	Resistant.	None.	Darkens slightly.	Slow deterioration and loss of strength.	Some strength loss for clear filaments, less for pigmented.	None.	——	Effect of sunlight
e- ept m- c, l-	Resistant to most acids.	Resistant to most acids.	Resistant to most acids.	Resistant to most acids.	Attacked by hydrofluoric and hot phosphoric acids.	Resistant to most acids.	Resistant to strong and weak acids.	Very resistant to acids.	Very resistant to acids.	Affected only by fluorine gas, by chlorine trifluoride at high temperatures, and by molten alkali metals.	Effect of chemicals — Acids
x- en- ic.	Resistant.	Weak alkalies cause yellowing; strong alkalies cause loss of strength.	Moderate resistance cold; disintegrated by strong alkalies at high temperatures.	Resistant to weak alkalies; destroyed by strong alkalies.	Attacked by concentrated alkalies, and by hot, weak alkalies.	Resistant, except to ammonium hydroxide.	Resistant.	Very resistant.	Resistant.		Effect of chemicals — Alkalies
a	Soluble in warm acetone; unaffected by most other common solvents.	Unaffected by common solvents.	Not affected by drycleaning solvents.	Unaffected by common solvents.	Unaffected.	Swelled or softened by oxygen-bearing solvents at elevated temperatures.	Resistant.	Soluble in some solvents at temperatures above 160 F.	Soluble in ketones and chlorinated hydrocarbons; swelled and softened by ethers, esters, and others.		Effect of chemicals — Organic solvents
ng l-	Neutral-dyeing metalized, disperse, basic, some acid.	Acid- and neutral-dyeing metalized, acid, neutral-dyeing acid, chrome, direct.	Disperse, azoic, basic.	Neutral-dyeing metalized chrome, direct, disperse sulfur, vat, and naphthol	Resin-bonded pigments.	Disperse, some azoics.	Acid, acid- and neutral-dyeing metalized, some direct and chrome.	Practically undyeable.	Disperse.	Practically undyeable.	Dyestuffs used
	1, 7	1, 2, 4, 7	1	1, 2, 4, 7	2, 7	2, 3, 4, 7	1	2, 7	5	7	Uses[4]

y the manufacturers of the
ta from "Harris' Handbook
ndards on Textile Materials."

See the oth side *of this chart for man-made fiber and yarn trade names and location of producers' sales offices.*
Reprints ar available. *Write to the Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.*

Trade names of man-mad

Designations currently used by American staple fiber, filament yarn, and textured yarn p

A

Acrilan—Acrylic staple and tow; Chemstrand Corp.

Agilon—High-stretch nontorque filament yarn; Deering-Milliken Research Corp.

Algil—Polyacrylonitrile - polystyrene monofilaments; Polymers, Inc.

Arnel—Cellulose triacetate staple and filament; Celanese Corp. of America

Avisco—Rayon staple and filament; acetate filament; American Viscose Corp.

Avisco Super L—Soil - resistant rayon carpet staple; American Viscose Corp.

Avisco XL—High-strength rayon staple; American Viscose Corp.

B

Ban-Lon—Stretch and bulk nontorque yarn; Joseph Bancroft & Sons Co.

Bemberg — Cuprammonium filament yarn; American Bemberg

Boltaflex—Saran monofilaments; Bolta Products

Briglo—Bright luster rayon filament; American Enka Corp.

Bristrand — Polyvinyl chloride-polyvinyl acetate monofilaments; Polymers, Inc.

C

Caprolan — Nylon 6 staple and filament; National Aniline Division, Allied Chemical & Dye Corp.

Celacloud — Type "F" crimped acetate staple (for stuffing sleeping bags, mattresses, etc.); Celanese Corp. of America

Celafil — Type "K" acetate staple (for stuffing pillows, comforters, etc.); Celanese Corp. of America

Celaperm — Solution dyed acetate filament; Celanese Corp. of America

Celaspun — Yarn spun from acetate staple; Celanese Corp. of America

C *continued*

Celatow — Acetate tow; Celanese Corp. of America

Chadolon — Stretch torque yarn; Patentex, Inc.

Chromspun — Solution dyed acetate filament; Eastman Chemical Products, Inc.

Coloray — Solution dyed rayon staple; Courtaulds (Alabama) Inc.

Color-Sealed — Solution dyed staple, filament, and tow, various fibers; Du Pont Co.

Colorspun — Solution dyed rayon staple, filament, and tow; American Viscose Corp.

Conomet — Metallic yarns; Shellmar-Betner Division, Continental Can Co.

Cordura — Rayon filament; Du Pont Co.

Covinaire — Rayon filament; Industrial Rayon Corp.

Covingtone — Rayon filament; Industrial Rayon Corp.

Creslan — Acrylic staple, filament, and tow; American Cyanamid Co.

Cupioni — Thick-and-thin shantung - type cuprammonium rayon filament; American Bemberg

Cupra-Color — Solution dyed cuprammonium rayon filament; American Bemberg

D

Dacron — Polyester staple, filament, and tow; Du Pont Co.

Darlan — Dinitrile staple; B. F. Goodrich Chemical Co.

Dawbarn — Saran, polyethylene, and polystyrene monofilaments; Dawbarn Bros.

Dull-Fast — Dull rayon filament; Industrial Rayon Corp.

Dul-Tone — Rayon filament; Industrial Rayon Corp.

Dynel — Acrylic staple; Carbide and Carbon Chemicals Co. ("Dynel" is a generic term, not a trademark)

E

Eiderlon — Rayon filament; Industrial Rayon Corp.

Englo — Dull luster rayon filament; American Enka Corp.

Estron — Acetate filament; Eastman Chemical Products, Inc.

F

Fairtex — Metallic yarns; Fairtex Corp.

Fiber E — Crimpable rayon filament; Du Pont Co.

Fiberfrax — Ceramic fiber; Carborundum Co.

Fiberglas — Textile glass fiber; Owens - Corning Fiberglas Corp.

Fibro — Rayon staple; Courtaulds (Alabama) Inc.

Filatex — Covered rubber yarn; American Viscose Corp.

Flaikona — Rayon filament flake yarn; American Bemberg

Fluflon — High-stretch torque yarn; Marionette Mills, Inc.

Fortisan — Saponified acetate filament; Celanese Corp. of America

45 — Polyvinyl chloride elastic yarn; Polymers, Inc.

G

Glacelon — High-stretch torque yarn; Textile Equipment Sales Corp.

Gro-Lon — Stretch torque yarn; Grove Nylon Co.

H

Helanca — High-stretch torque yarn; Heberlein Patent Corp.

Helanca Hi-Test — Stretch yarn for half-hose and stretch fabrics; Heberlein Patent Corp.

Helanca SW — Limited stretch boucle yarn for outerwear; Heberlein Patent Corp.

Hi-Narco — Medium tenacity rayon filament; North American Rayon Corp.

I

IRC — Nylon staple; Industrial Rayon Corp.

de fibers and yarns

rn producers

J

Jetspun — Solution dyed rayon filament; American Enka Corp.

K

Kolorbon — Carpet-type solution dyed rayon staple; Hartford Rayon Co.

L

Lame — Metallic yarn; Standard Yarn Mills, Inc.

Lektroset — Twist-set rayon filament; Industrial Rayon Corp.

Lowland — Rayon yarns; American Enka Corp.

Lurex — Metallic yarn; Dobeckmun Co.

Lus-Trus — Saran monofilaments; Southern Lus-Trus Corp.

M

Matesa — Dull cuprammonium filament; American Bemberg

Metlon — Metallic yarn; Metlon Corp.

Minifil — Coarse denier per filament rayon yarn; American Viscose Corp.

N

Narco — Regular tenacity rayon filament; North American Rayon Corp.

Nub-Lite — Nubby thick-and-thin cuprammonium filament; American Bemberg

Nupron — Rayon filament; Industrial Rayon Corp.

Nupronium — Rayon filament; Industrial Rayon Corp.

Nylenka—Nylon 6 staple and filament; American Enka Corp.

O

Orlon — Acrylic staple and tow; Du Pont Co.

P

Perlglo—Semidull luster rayon filament; American Enka Corp.

Poliafil — Nylon filament; Poliafil, Inc.

P *continued*

Poly-Bolta — Polyethylene monofilaments; Bolta Products

PPG — Textile glass fiber; Pittsburgh Plate Glass Co.

Premier — Rayon filament; Industrial Rayon Corp.

Q

Quilticel — Insulating material of acetate staple; Celanese Corp. of America

R

Rayflex — High-tenacity rayon filament; American Viscose Corp.

Raysorb — Yarns used for staple absorbent; American Viscose Corp.

Reevon — Polyethylene monofilaments; Reeves Bros., Inc.

Reynolds — Aluminum yarns, filament and staple; Reynolds Metals Co.

S

Saran — generic name for vinylidene chloride-vinyl chloride copolymers, staple and filament.

Shalon — Polystyrene monofilaments; Polymers, Inc.

Spun-Black — Black solution-dyed rayon filament; Industrial Rayon Corp.

Spun-Lo — Rayon filament; Industrial Rayon Corp.

Strata-Slub — Thick-and-thin cuprammonium rayon filament; American Bemberg

Super Cordura — High tenacity rayon filament; Du Pont Co.

Super-Narco — High tenacity rayon filament; North American Rayon Corp.

Super Rayflex — Extra high tenacity rayon filament; American Viscose Corp.

Superwind — Rayon filament; Industrial Rayon Corp.

Suprenka — Extra high tenacity rayon filament; American Enka Corp.

T

Taslan — Nonstretch bulked yarn; Du Pont Co.

Teflon — Polytetrafluoroethylene staple and filament; Du Pont Co.

Tempru—High tenacity rayon filament; American Enka Corp.

Tycora—Textured filament yarns; Textured Yarn Co., Inc.

Tyron — High tenacity rayon filament; Industrial Rayon Corp.

U

Uniformat — Textile glass fibers in mat form; Fiber Glass Division, Ferro Corp.

V

Velon — Saran multifilament, monofilament, staple and tow; Firestone Plastics Co.

Verel — Modified acrylic staple and tow; Eastman Chemical Products, Inc.

Veri-Dul — Dull rayon filament; Skenandoa Rayon Corp.

Vicara — Zein (corn protein) staple and tow; Virginia-Carolina Chemical Corp.

Vinyon — Vinyl chloride-vinyl acetate copolymer staple; American Viscose Corp.

Viscalon "66"—Carpet-type rayon staple; Hartford Rayon Co.

W

Wynene — Polyethylene monofilaments; National Plastic Products Co.

Z

Zefran — Nitrile alloy staple and tow; Dow Chemical Co.

Zycon—Zein (corn protein) staple for hats; Virginia-Carolina Chemical Corp.

REPRINTS *of this chart are available so long as the supply lasts.*
Write to the Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

Where to get them

Sales offices of fiber producers and owners of textured yarn patents

American Bemberg
261 Fifth Ave.,
New York 16, N. Y.

American Cyanamid Co.
30 Rockefeller Plaza
New York 20, N. Y.

American Enka Corp.
530 Fifth Ave.
New York 36, N. Y.

American Viscose Corp.
1617 Pennsylvania Blvd.
Philadelphia 3, Pa.

Joseph Bancroft & Sons Co.
Wilmington 99, Delaware

Bolta Products
P.O. Box 61
Lawrence, Mass.

Carbide and Carbon Chemicals Co.
30 East 42nd Street
New York 17, N. Y.

Carborundum Co.
Buffalo Ave.
Niagara Falls, N. Y.

Celanese Corp. of America
180 Madison Ave.
New York 16, N. Y.

Chemstrand Corp.
350 Fifth Ave.
New York 1, N. Y.

Continental Can Co.
Shellmar-Betner Division
530 Fifth Ave.
New York 36, N. Y.

Courtaulds (Alabama) Inc.
600 Fifth Ave.
New York 20, N. Y.

Dawbarn Brothers, Inc.
Waynesboro, Virginia

Deering Milliken Research Corp.
Pendleton, S. C.

Dobeckmun Co.
350 Fifth Ave.
New York 1, N. Y.

Dow Chemical Co.
James River Division
Lee Hall, Virginia

E. I. du Pont de Nemours & Co., Inc.
Textile Fibers Dept.
Wilmington 98, Delaware

Eastman Chemical Products, Inc.
260 Madison Ave.
New York 16, N. Y.

Fairtex Corp.
1808 Liberty Life Bldg.
Charlotte 2, N. C.

Firestone Plastics Co.
307 Fifth Ave.
New York 16, N. Y.

B. F. Goodrich Chemical Co.
3135 Euclid Ave.
Cleveland 15, Ohio

Grove Nylon Co.
150 E. Grove St.
Scranton 10, Pa.

Hartford Rayon Co.
140 Madison Ave.
New York 16, N. Y.

Heberlein Patent Corp.
350 Fifth Ave.
New York 19, N. Y.

Industrial Rayon Corp.
500 Fifth Ave.
New York 36, N. Y.

Marionette Mills, Inc.
P.O. Box 430
Coatesville, Pa.

Metlon Corp.
432 Fourth Ave.
New York 16, N. Y.

National Aniline Division
Allied Chemical & Dye Corp.
261 Madison Ave.
New York 16, N. Y.

National Plastic Products Co.
Odenton, Maryland

North American Rayon Corp.
261 Fifth Ave.
New York 16, N. Y.

Oriented Plastics, Inc.
Pembroke, N. H.

Owens-Corning Fiberglas Corp.
598 Madison Ave.
New York 22, N. Y.

Patentex, Inc.
350 Fifth Ave.
New York, N. Y.

Pittsburgh Plate Glass Co.
One Gateway Center
Pittsburgh 22, Pa.

Poliafil, Inc.
302 Fig St.
Scranton, Pa.

Polymers, Inc.
Middlebury, Vt.

Reeves Bros., Inc.
54 Worth St.
New York 13, N. Y.

Reynolds Metals Co.
Louisville 1, Kentucky

Skenandoa Rayon Corp.
261 Fifth Ave.
New York 16, N. Y.

Southern Lus-Trus Corp.
P. O. Box 3386
Jacksonville 6, Fla.

Standard Yarn Mills, Inc.
83rd St. & Cooper Ave.
Glendale 27, N. Y.

Textile Equipment Sales Corp.
Greensboro, N. C.

Textured Yarn Co., Inc.
40 E. 34th St.
New York 16, N. Y.

Virginia-Carolina Chemical Corp.
99 Park Ave.
New York 16, N. Y.

LOCATION OF U.S. SYNTHETIC FIBER PRODUCERS' PLANTS
JULY 1957
MAINE
VERMONT
NEW HAMPSHIRE
MASS.
CONN.
RI
NEW YORK
PENNSYLVANIA
NEW JERSEY
MARYLAND
DEL.
OHIO
INDIANA
WEST VIRGINIA
VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
FLORIDA
Middlebury N-PS-OF
Fair Haven R
Pembroke R
Lawrence PT-S
Ashton G
Rocky Hill R
Taftville PR
Utica R
Niagara Falls C
Scranton N
Meadville A-PA
Painesville R
Waterville G
Cleveland R
Defiance G
Lewistown R
Huntingdon G
Pottstown N-PT-S
Cumberland A
Odenton N-S-PT
Seaford N
Front Royal R
Parkersburg R-G
Shelbyville G
Nitro R
Waynesboro A-N-PT-PS-S
Covington R-T
South Charleston AR
Richmond R-T
Chesterfield N
Lee Hall NA
Narrows A
Roanoke R
Martinsville N
Kingsport A-AR
Elizabethton R
Old Hickory R
Lowland R
Kinston PE
Enka R-N
Rock Hill A
Chattanooga N
Spartanburg PT
Anderson G
Camden AR
Decatur AR
Rome R
Childersburg R
LeMoyne R
Pensacola N-AR
Jacksonville S
KEY
A - acetate
AR - acrylic
C - ceramic
G - glass
N - nylon
NA - nitrile alloy
OF - other fibers
PA - polyvinyl acetate
PE - polyester
PR - protein
PS - polystyrene
PT - polyethylene
R - rayon
S - saran
T - tetrafluoroethylene
○ - under construction
Pilot plants are not shown

Today's status of

Textured filament yarns

by Eldon Stowell*
Technical Director
Brant Yarns, Inc.

Exclusive

SINCE 1952 numerous patents and articles in the trade press have described the texturizing of thermoplastic continuous filament yarns. That year saw these yarns make their initial commercial appearance, although the idea of making a stretch yarn originated as early as 1931 with the use of a stretchable acetate made by twist-untwist methods.

This article will deal only with continuous filament yarns, and will not include regular or high-bulk staple acrylics, such as those made by the Turbo Stapler, Pacific Converter, or high-and-low shrink staple yarns.

Market. It is estimated that the present textured filament yarn market uses approximately 35-40 million pounds of nylon, including combinations with yarns of the natural fibers; over 5 million pounds of bulked acetate; and several hundred thousand pounds of Dacron polyester yarn. This gives an over-all total of close to 45 million pounds—a demand developed in a period of less than five years, and representing about 10 per cent of all synthetic filament yarns produced.

It should be observed further that all fibers employed are true thermoplastics, capable of being re-oriented, deformed, or heat-set, with the exception of the acetates. The latter are being texturized by the aero-twist or Taslan-type method, but are not yet suitable for the processes requiring heat setting.

It is evident to the trade and to the consumer that the vast array of new processes for modifying filament is extremely confusing. Moreover, when each process produces different varieties of yarns under various trade names, and these in turn are made into garments of different brands, the picture is almost impossible for the store buyer to fathom.

We can assume three years are necessary to exploit any process commercially to a point where the apparel product of that process is sold over the counter. This lag time can establish or ruin any product during its progression from the machinery company's drawing board to ultimate and continued across-the-counter sales of the finished product.

It is the purpose of this article to evaluate today's textured yarn market and to examine those processes which are commercial and to review all starters in this newest of textile races, the textured continuous filament yarns.

Terms. A name is necessary to describe these yarns. By common usage in the past few years the term "textured" has come to be synonymous with a modified filament yarn. Textured yarn can mean "stretch," "low bulk," "high bulk," or just "bulky."

In spite of various attempts, here and abroad, to clarify each of these, the picture becomes more confusing each day. However, it is now reverting to one thesis which, more than ever, becomes increasingly logical. As far as the ultimate consumer is concerned, the identity of the process and the product is directly proportional to the amount of advertising and promotion spent on it. This, of course, shows that a product properly designed, made, and promoted will sell, while even a better product without promotion, may never reach the counter.

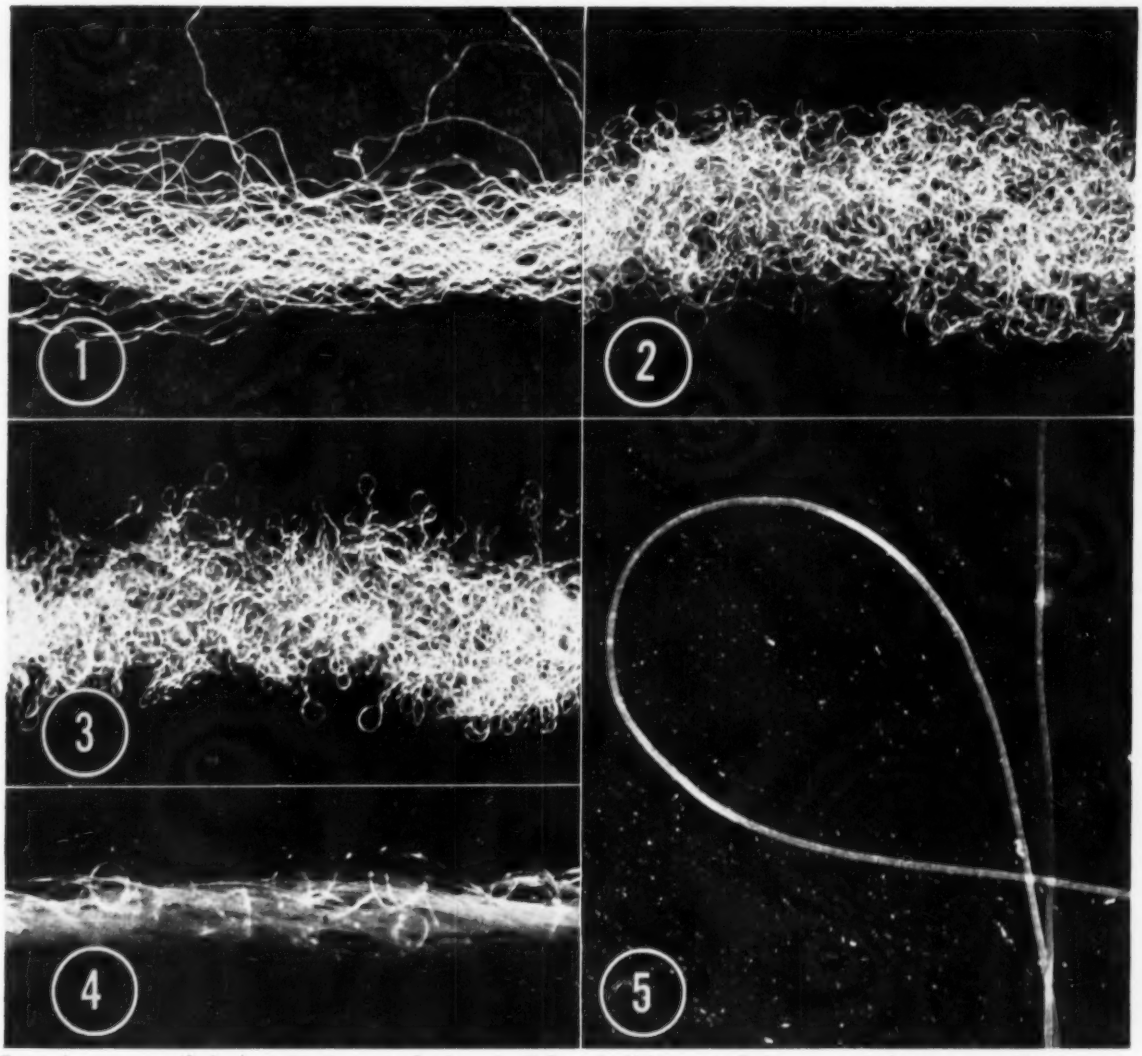
Thus, it is the writer's opinion that it is too late to educate the public in describing bulk or stretch yarns per se, and that the concern with the largest advertising budget will win out in the race, provided the product is right. The public does not know or care whether a yarn is made by a certain process or by a particular throwster.

We grant that trade promotion is important to sell the knitter or weaver. However, the store buyer is the key. If he finds essentially national promotion back of the product, and the item is reasonably good, he will buy it, and it should, in all probability, sell. This one thesis then, as with most products, is what happened in the case of continuous textured yarns.

Let us examine then the texturing processes and yarns which have been developed and present each one from three viewpoints—yarn processes, economics, and commercial applications.

Yarn Processes. The idea of modifying filament yarns was known as early as 1931 and, although limited amounts of bulked acetate were produced, the yarn was not satisfactory due to insuf-

*Formerly with Universal Winding Co.



Textured yarns magnified about 50 times: 1. Ban-Lon. 2. Fluflon. 3. Helanca. 4. Taslan. 5. A high-torque monofilament yarn.

ficient yarn strength plus poor ability to set-in distortion. With the advent of nylon in 1939, a material became available which could be subjected to considerable mechanical forces required to make a stretch, bulk, or, as we know it, a textured yarn.

It is important to realize that basically there are four engineering principles which have been used today to make textured yarns. There are perhaps hundreds of variations, and many more newer concepts of fiber distortion, but most seem to revert or point to a modification of the basic concepts which are used commercially today. These principles are:

1. Pressurized air bulking and twisting.

2. Twisting — conventional and false twist.

3. Crimping by stuffing into a confined space.

4. Drawing over a sharp edge.

The first process requires no heat. The others require thermosetting to hold in the mechanical force to which the yarn has been subjected. As one should note, the nature of the fiber is a primary consideration, and this factor will affect what fibers are used. Later we will see how this affects the economics of the end-use.

Nylon is by far the most popular fiber in the last three above-mentioned processes. Due to the hydrophilic nature of acetate and viscose the set-in distortion in a wet state is not permanent in these fibers which in turn might be processed on stretch and bulk equipment using heat, pressure, distortion, or twist to accomplish the permanent realignment of the parallel fibers.

On the other hand, certain low-bulk processes, using air in conjunction with twist, can and do use these fibers to advantage with good permanent results. It may be said, therefore, that although the chemical nature of the fiber is important, the method of distortion is the governing factor.

Having covered the basic raw materials, the method of texturizing should be considered. As noted, one can evaluate these in four

basic process categories:

1. Pressurized Air Bulking

Product Names. Du Pont Taslan[1], Enka Type "A" and "B" Processes, Eastman Lofted Acetate.

Process. In these processes, the yarn passes through an air venturi and the individual filaments are entangled into loops by the force of the pressurized air. Twist is inserted after the yarn passes through the air bulking attachment in order to hold the loops in place. The over-all attachment is mounted on a conventional redraw twister. The percentage of bulk or increase in mass per unit volume is much lower than that obtained by the other processes (about 20 to 35 per cent as compared with as much as 250 per cent), but this can be controlled by the amount of air pressure and yarn take-up speed.

Machinery. U. S. Textile Machine Co.; Abbott Machine Co.

2. Twist Methods

Product Names. Helanca[2] Stretch, Helanca[2] SW and SS, Superloft[3], Fluflon[3], Saaba[3], Dynaloft[4], Magiloft[5], Belmont[6].

It should be appreciated that there are perhaps 40 trade names for stretch yarns and over 15 for bulk yarns.

Process. Either a multistep twist process or a false twist continuous method may be employed. Normally, conventional up-twisters are used to insert as much as 100 turns per inch. The yarn is twisted in one direction, set at approximately 240 F, then twisted in the reverse direction. The false twist method is a continuous operation wherein the yarn is twisted, heat-set by contact or radiant heat, and untwisted in one operation. Bulk yarn may be made from stretch yarns by additional processes as developed by Universal Winding Co. Bulk is achieved in subsequent wet processing in garment or fabric form.

Although the majority of textured continuous filament yarns utilize those comprised of multifilaments, there are processes for the production of stretch monofilament 7-, 10-, and 15-denier yarns for women's full-fashioned and seamless hosiery. These are made by various methods, such as by inserting twist, setting, and removing part of the twist. Patentex, Inc., licenses the use of a large group of patented methods to a great many hosiery knitters. Another technique utilizes the continuous false twist equipment with attachments to produce regular stretch, dual torque, and no-torque stretch yarns.

Machinery. Universal Winding Co.; E. Scragg & Co.; Hoburn Aero Components; American Machinery Co.; S. and E. Scragg Co.; Heberlein & Co.; Collins Brothers Machine Co.; Morris Speizman Co.

3. Confined Space Crimping

Product Names. Ban-Lon[7], Tycora[8], Mirafil, and others.

Process. Basically, the yarn is compressed into a heated stuffer box, ply-twisted, and wound. Bulk is achieved in subsequent wet processing.

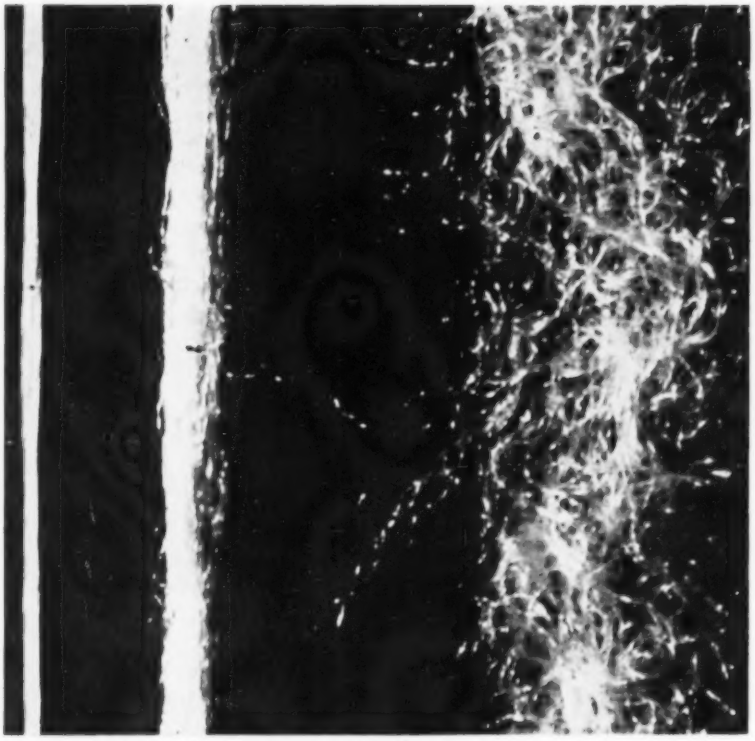
Machinery. Foster Machine Co.

4. Edge Crimping

Product Name. Agilon[9].

Process. Yarn is passed over a heater and then run at an angle over a sharp edge. This process distorts the yarn on one side of the filament, causing curling or bulking of the yarn.

Machinery. Deering Milliken Research Corp.; Universal Winding Co.

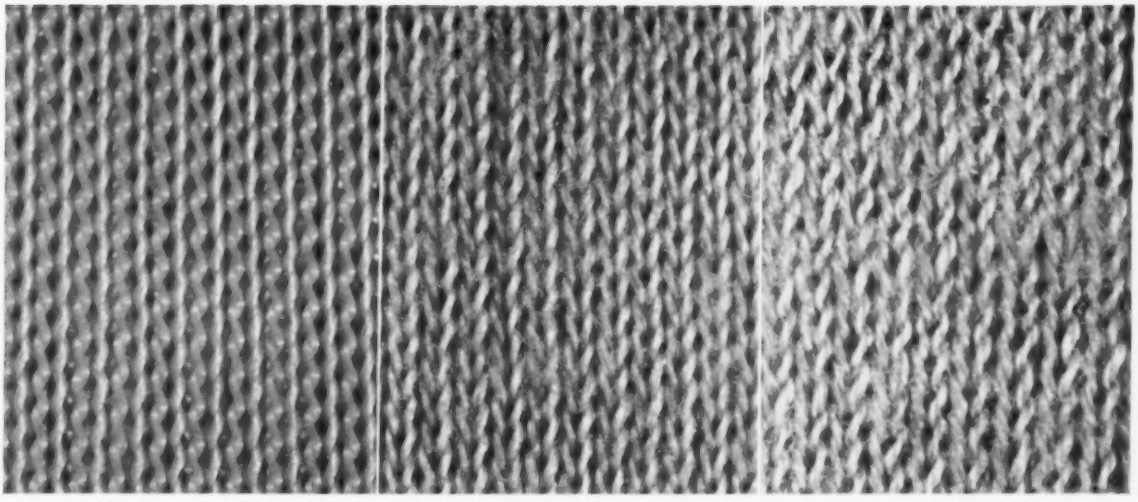


Left to right: Regular filament nylon, Helanca under tension, and Helanca relaxed.

Economics. We have noted that nylon is the principal yarn used today in textured continuous filament processes. Dacron is currently texturized to a limited extent. If and when continuous filament acrylic yarns become available, the possibilities increase tremendously.

Whether it is cheaper to extrude, cut, and then spin a yarn, as compared to texturizing a filament yarn or tow, is a dilemma in which the producers are finding themselves more deeply involved as newer equipment and techniques are developed. As recently as ten years ago producers found

1E. I. du Pont de Nemours & Co., Inc.
2Heberlein Patent Corp.
3Universal Winding Co.
4Leon Ferenbach, Inc.
5Madison Throwing Co.
6Belmont Throwing Co.
7Joseph Bancroft & Sons Co.
8Textured Yarn Co.
9Deering Milliken Research Corp.



Difference in cover and luster can be seen by comparing a bulked nylon yarn, Taslan, knitted in half-hose (center), with the same fabric made from a continuous filament yarn of the same fiber and base denier (left). A difference of weight for the same cover is illustrated by comparing the bulked yarn fabric with the half-hose made from spun nylon (right).

the staple business increasing, the filament types decreasing. However, the future definitely indicates that the synthetic continuous thermoplastic filament yarns are capable of giving the advantages of staple—bulk with less weight—plus the added features of nonpilling, uniformity, new styling, core yarns, blends, etc.

At the present time the economics of textured yarns are dependent on the fiber plus the costs of the above-described processes. They are still in the luxury class, since low-denier nylon or Dacron polyester yarns, such as the 70-, 100-, 140-, and 200-deniers are used. Applications for viscose and acetate also employ low deniers of comparable counts.

Texturizing as conducted by processors today might be considered expensive for two reasons —the cost of the low denier thermoplastic yarns, and the cost of the processing itself. These two figures are rapidly being decreased by three approaches. One is the use of heavier denier yarns and yarns in singles and not ply form, the development of higher processing speeds and improvements in texturizing, and the use of other and cheaper fibers.

For example 70/2 and 70/4 nylon are used in the principal textured applications—stretch socks and bulk sweaters. The trend is to 140/1 and 140/2, 200/2, and heavier sizes. As knitting techniques improve singles yarn will replace ply yarns. We could cite another trend in the use of 400-, 480-, and 560-denier yarns and tow up to 5000 for rugs by the Agilon, Ban-Lon, or twist processes. The possibility of bulk viscose continuous yarns offers tremendous possibilities which are being evaluated in research.

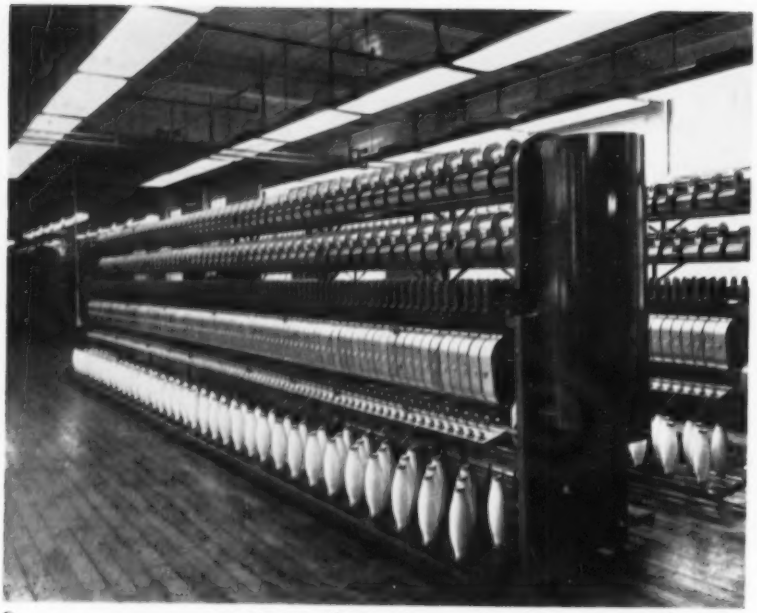
By and large the texturizing process costs today anywhere from 30¢ to $1.35 extra a pound, including most process royalties. These costs, coupled with the comparatively high price of nylon and Dacron, place the garment at least in the category of wool and worsted yarns. However, with the above developments, the over-all economics of textured filaments is and will continue to be more favorable.

Commercial Applications. We have stated that a total of more than 40 million pounds of texturized continuous filament yarn is consumed annually. One trend in 1953-5 was for all stretch yarns; there were no commercial filament bulk processes prior to about 1954. However, if we project the situation today, we find certain definite statistical trends appearing to offset this early and very successful beginning of stretch yarns. That is, stretch yarn usage is leveling off and possibly decreasing, while bulk yarns are just beginning to appear in substantial volume far greater than the highest dreamed of potential for stretch yarns.

This is logical in that stretch yarns were designed for a specific purpose, that of size or growth factor and subsequent reduction of store inventory by the use of long wearing nylon. Applications hence were, in order of importance, men's socks, girdles, panties, women's stretch monofilament hosiery, bathing suits, and various other undergarment applications.

This group accounted for practically all of the applications through 1955. In the past year, however, "size" hosiery has begun to appear, cheapness and poor workmanship in many stretch articles and garments has tended to offset the initial gains, so that today stretch yarns comprise perhaps only 60% of all textured yarns.

Bulk textured filament yarns, on the other hand, are just beginning to grow into larger volume end use applications than stretch yarns. It is in this field, where one hears names such as Helanca, Ban-Lon, Tycora, Agilon, and Saaba, that the real potential lies. Stretch yarns are here to stay, but in limited volume. The potential of bulk continuous yarns is virtually unlimited. Today bulk yarns are estimated at 40% of all textured



One-process machine for continuous, high-speed production of stretch yarn (Universal Model 550). Called the Superloft machine, it will produce over 400 pounds a week on 216 spindles.

yarns, the balance being a fairly stable and yet possibly decreasing stretch market. Let us examine which processes are commercial and in what applications each has found a place.

Agilon. Estimated 100,000 pounds annual production by over a dozen licensees. Principal use—women's stretch hosiery. Price for 15-denier nylon is about $17 per pound. Applications are limited but excellent potential is anticipated in rugs and heavier denier products.

Ban-Lon. Estimated about 10 million pounds annual production, with markets expanding rapidly. Principal use—all types of sweaters, sport shirts, underwear, and girdles. It is estimated that there are over 30 licensed producers and more than 100 knitters currently handling Ban-Lon. Current price is $3.18 a pound for 70-denier; prices are lower for coarser deniers. Developments in woven and tricot fabrics are well under way.

Helanca SW. This is a boucle crepe-type yarn. Annual production is estimated at up to 1 million pounds, by about 15 licensed producers. The current price for 200/2 yarn is about $2.45. Its principal use is in sweaters in novelty styles.

Helanca SS (Saaba). This is a smooth, bulky-type yarn. Estimated volume by the end of 1957 is under ½ million pounds; sampling is now being done by knitters and weavers. Price is expected to be about $3.00 per pound for 70-denier, with lower prices for coarser deniers. Excellent development possibilities are seen in woven and tricot fabrics.

Taslan (and Similar Bulked Yarns). Estimated annual volume over 6 million pounds. Licensed by Du Pont and Enka, and produced by Eastman (acetate only). Principal uses—woven fabrics, knit underwear, tufted carpeting (acetate only). Price varies from 40¢ to 85¢ per pound and upward over the price of raw yarn, depending on denier.

Tycora. One producer (Textured Yarn Co.), who confines output to a number of knitters and fabricators. Estimated volume is 750,000 pounds annually. Principal uses are in socks, sweaters, and underwear. The price of Tycora is $3.65 per pound for 70-denier, with lower prices for coarser deniers. Development is under way for use in woven and tricot fabrics.

These are the main commercial yarns which are being offered to the trade today. However, only about half of the textured filament yarns are being sold under brand names. We find about 50 per cent of all stretch yarns in men's socks, for example, being sold simply as "stretch," and another 20 per cent being marketed as "stretch" nylon—cotton or wool blends.

In bulk yarns, the leading sweater houses, for example, do not identify the yarn by brand but prefer to market the product as their own brand of sweater. Also, the low-price volume jobbers and chain stores do not use the brand names, preferring again to use a catch-all phrase, such as "textured" nylon, usually in conjunction with their own brand name.

In the over-all bulk picture, it is estimated that only 60 per cent use a yarn brand name. However, as has been noted, the success of a yarn or a yarn process is dependent on the advertising supporting that process—a situation that is no different from that with many other products.

There is little question that the textured filament yarn is rapidly growing but, in each development there are always problems in addition to obvious advantages. The principal problem that confronts the textured yarn producer and processor is yarn uniformity. Certain lack of uniformity can be hidden in staple synthetic or natural fiber yarns. Textured yarn manufacture is critical in that there are factors such as twist, tension, or heat processing variations in the yarn; tension and stitch distortion and other problems in knitting, often resulting in periodic barre in garments. The dyer has had to develop new techniques, such as thermo-setting of sweaters, in order to achieve a washable and stabilized garment.

These and many more manufacturing problems have made the industry hold back on textured yarns to some extent. However, the techniques in processing have been now fairly well achieved and the future for textured yarns is bright.

How Celanese evaluates fiber and fabric performance

What makes a fabric sell?

by J. Poupalos[1] & C. Clutz[2]

Celanese Corp. of America
Charlotte, N. C.

Exclusive

Aids to fiber and fabric evaluation:

Stress-strain tests . . .

Abrasion resistance tests . . .

Fabric static tests . . .

Weathering resistance tests.

TODAY'S textile fibers are employed in more than a thousand different kinds of apparel, home furnishing, and technical end uses. The performance or over-all quality of a specific textile end product, such as a woman's washable dress or the upholstery of an automobile, is a function of many factors. However, the properties of the building blocks — the fiber or fiber blend used to manufacture the end item — are a major contributing factor.

The evaluation and appraisal of fiber performance in the light of textile end products and the specific requirements and desires of the textile manufacturing industry are the object of this brief review.

Setting Standards. In determining the performance of a fiber or fiber blend in a specific end product or basic fabric construction, a multitude of often intangible factors must be reduced to a limited number of practical criteria. Pref-

[1]Development Engineer, Evaluation Laboratories.
[2]Head, Evaluation Laboratories.

erably they should be of such a nature that they can be measured by quantitative laboratory tests. However, in order to obtain a reliable indication of the over-all performance and commercial acceptability of a fiber or fiber blend, a subjective qualitative rating of certain characteristics must be included.

The nature of most uses of textile materials makes it extremely difficult to determine directly minimum requirements which will insure satisfactory performance. Although we often consider that specifications of fabrics which have shown satisfactory performance in a specific end use will indicate the level of requirements for other fabrics in this end use, this is not necessarily true.

For example, a blouse fabric may be strong enough to withstand all normal wear and tear when it shows 20 lb tensile and 1.0 lb tear strength. However, when made from a fiber X in a certain construction, the proper minimum strength level may have to be 30 lb tensile and 2 lb tear strength, and when the same fabric is made from fiber "Y," the level and ratio of the tear and tensile strength may again have to be different from what is generally accepted as a minimum for a specific end use.

It is evident that the establishment of minimum requirements for end uses regardless of fiber content and specific yarn and fabric construction is an unrealistic approach. Instead, minimum requirements must be set up for basic fabrics made from a given fiber or fiber blend considering specific end uses. If such specifications as ASA L-22 or the TDI Standards are used, in keeping with the above limitations, they will serve a useful purpose. However, it would be incorrect to generalize these standards and to use them indiscriminately as minimum end use requirements regardless of fiber content and fabric construction.

Other Factors in Commercial Success. In addition to the performance of a fiber or fiber blend in a specific end use fabric, there are other important factors contributing to the commercial acceptance of a fiber. Very often these factors may be more important than level of properties contributing to serviceability.

In the fabric manufacturing phase, availability and cost of the fiber material and ease of processing are important, together with the versatility of its use for different yarn and fabric constructions. The cost of dyeing and the colorfastness which can be obtained with available dyestuff has a significant effect both on ultimate fabric cost as well as performance.

For the converter, aesthetic appeal, versatility of color styling, including variations of hand and drape obtainable by finishing a basic grey fabric, and low dyeing and finishing costs are important factors in addition to the functional characteristics.

The ultimate consumer is primarily interested in appearance and functional properties which represent a current trend; for example, fabrics which will justify the label "ease-of-care" or "wash-and-wear." Of course, the fabric must meet minimum requirements regarding durability and other functional characteristics as established by competitive fabrics with which the consumer is familiar.

TABLE I. SALES APPEAL & PERFORMANCE INDEX (SAPI) OF WOMEN'S SUITINGS

		Fiber Content		
Interest	**Factors**	**A**	**B**	**A/B Blend**
Manufacturer:	Raw Material	4	2	3
	Ease of Processing	4	2	2
	Versatility	2	2	4
	Profit Margin	1	3	4
	Manufacturer SAPI	3	2.2	3.2
Converter:	Aesthetics	3	2	4
	Versatility	2	2	4
	Ease of Tailoring	4	1	2
	Durability	2	4	3
	Profit Margin	1	3	4
	Consumer SAPI	2.4	2.4	3.4
Consumer:	Appearance	4	3	4
	Economics	4	2	3
	Ease of Care	1	3	3
	Familiarity with Product	4	2	3
	Durability	2	4	4
	Converter SAPI	3.0	2.8	3.4

1—poor
2—fair
3—good
4—excellent

Acceptance Rating. For the appraisal of all these factors contributing to the acceptance of a given fiber or a fiber blend in a specific end use, Celanese is employing a qualitative rating system. A simplified example covering sales appeal and performance indices (SAPI) (for women's suitings), is shown in Table I. The numerical rating used corresponds to the levels of performance as shown at the bottom of the table.

From Table I it is seen that the SAPI are greater for the blended suiting fabric than for either of the single fiber component fabrics from the manufacturer, converter, and consumer interests. The most favorable factors of the blended fabric are shown to be versatility, durability, aesthetics, and appearance, and resulting from this a higher profit margin. Those factors which are lowest in numerical ratings are considered critical and unless special efforts are directed toward them, final acceptance will be seriously jeopardized.

The calculation of the SAPI

TABLE II. CHARACTERISTICS CONTRIBUTING TO INDIVIDUAL FACTORS FOR WOMEN'S SUITINGS

Factor	Characteristic
Manufacturer	
Raw Material	Availability and cost
	Uniformity of quality
	Ease of storage
Ease of Processing	Adaptability to various spinning systems
	Spinning quality and production rates
	Weaving quality and production rates
	Extent of technical know-how and experience
	Is existing equipment adequate?
Versatility	Range of yarn counts spinnable available in filament and staple
	Blending potentials
	Range of fabric constructions
Profit Margin	Unit costs
	Volume and delivery schedule
	Start-up costs
	Clean-up costs
	Allowance of defectives
	Price and market stability
Converter	
Aesthetics	Color appeal
	Surface interest
	Softness of hand
	Drape
	Resilience
	Wrinkle resistance
	Uniqueness
	Lightness of weight
Versatility	Color range and effects
	Variations in surface and hand
	Adaptability to various dyeing and finishing equipment
	Number of end usages
Ease of Tailoring	Cutting and sewing
	Pleat retention
	Forming and pressing
	Freedom from handling and packing damage
	Garment appeal
	Adaptability to garment styling
Converter *(continued)*	
Durability	Colorfastness
	Strength retention
	Abrasion resistance
	Dimensional stability
	Pilling resistance
	Hand permanence
Profit Margin	Cost of grey goods
	Converting costs
	Price and market stability
	Volume and delivery schedule
Consumer	
Appearance	Color and weave pattern
	Surface texture
	Smoothness of seams and buttonholes
	Crease and pleat sharpness
	Freedom from wrinkles
	Uniqueness
	Freedom from static
Economics	Cost
	Garment life
	Ease of alterations
	Laundering and cleaning costs
Ease of Care	Ease of laundering and drying
	Appearance after laundering
	Crease and pleat permanence
	Spot and soil resistance
	Wrinkle resistance
	Insect and mildew resistance
Familiarity with Product	Personal experience
	Public knowledge
	Advertising and promotion
Durability	Colorfastness
	Strength retention
	Abrasion resistance
	Pilling resistance
	Shape retention
	Hand permanence
	Dimensional stability
	Seam and buttonhole permanence
	Fusing and melting resistance

value for some applications will be further complicated by weighing some factor to place greater importance thereon. The durability of a fabric for an industrial belting may be five times as important to a customer as the familiarity with product, for example.

Each of the factors contributing to a SAPI is, in turn, a composite of several characteristics. Table II is an example for the same fabric end use used in Table I.

The inclusion of all critical characteristics for the end use, and correct estimation of performance level of each, determine the reliability conveyed by the factors in Table I.

Summary. The evaluation of fiber or fabric acceptance requires accurate estimates of the sales appeal and performance characteristics. This necessitates careful consideration of less tangible but very important factors as well as the performance qualities of the fiber or fabric.

These factors are tabulated and summarized in a final index known as SAPI, which serves as a convenient method for comparative ratings of the over-all merits of the fiber, fiber blend, or fabric for a particular end use.

DYEING THE SYNTHETIC

by G. T. Hug
Technical Laboratory
Organic Chemicals Department
E. I. duPont de Nemours & Co., Inc.

Exclusive

APPROXIMATELY fifteen synthetic fibers are being produced on a commercial or pilot-plant basis in the United States. We will describe here in general terms basic dyeing procedures. Numerous variations of these methods are being used. For brevity, we will not discuss fiber blends.

"Teflon" tetrafluoroethylene fiber, which is practically undyeable, will not be discussed here. Also not included are modifications of fibers such as high tenacity rayon, 6 nylon, and glass.

The various fibers to be discussed and their general chemical classifications are as follows:

Polyamide Fibers
- 66 Nylon

Acrylic, Modified Acrylic, or Vinyl Fibers
- "Acrilan"*
- "Creslan"*
- Dynel
- "Orlon"*
- "Verel"*

Polyvinylidene Chloride Fiber
- Saran

Polyester Fiber
- "Dacron"*

Dinitrile Fiber
- "Darlan"*

Nitrile Alloy Fiber
- "Zefran"*

Cellulosic and Protein Fibers
- Acetate
- "Arnel"*
- Rayon
- "Vicara"*

POLYAMIDE FIBERS—NYLON

Nylon is the generic name given by the Du Pont Company "for any long-chain synthetic polymeric amide which has recurring amide groups as an integral part of the main polymer chain, and which is capable of being formed into a filament in which the structural elements are oriented in the direction of the axis."

The term nylon does not identify any one compound or textile fiber but refers to a broad class of chemical compounds which are used in such things as bristles, sheets, moldings, extensions, and coatings, as well as textile fibers.

Several types of nylon are used in the textile field. The original 66 nylon first manufactured by Du Pont is made from a polymer based on hexamethylene diamine and adipic acid. The 6 nylon, based on caprolactam, was first produced commercially in Germany as Perlon. Several domestic firms now produce 6 nylon. "Rilsan," manufactured in France, is a related fiber.

These various nylons have different physical properties and minor differences in dyeability. For example, 6 nylon dyes more rapidly than 66 nylon, and with some dyes will give deeper shades.

Nylon has receptivity for nearly all classes of dyes. Generally the dyes are selected from the disperse and acid dye classes, the latter group including neutral dyeing metalized ("Capracyl"), acid dyeing metalized ("Chromacyl"), chrome, and in a few cases direct dyes.

Nylon staple has a greater rate of dye absorption than nylon filament yarns. Staple that has been crimp-set will dye to a deeper shade than noncrimp-set staple. Delustered fibers require more dye to give equal color value than undelustered yarns. However, the dye receptivity is not affected by the delusterant.

Dyeing Methods. There are two general methods used at the present time for dyeing nylon:

1. Conventional aqueous dyeing.
2. Aqueous dyeing above 212 F.

Disperse dyes are applied to nylon by conventional aqueous dyeing. This method is satisfactory for the development of nearly any desired depth of shade. Because disperse dyes level or transfer well on nylon, they are useful in minimizing warp streaks or filling bars caused by slight differences in the yarn. Up to 1954 most filament nylon, including women's hosiery, broadwoven fabrics, and tricot knit fabrics, was dyed with disperse dyes. However, acid dyes are finding increased use due to the demand for better fastness to light, washing, heat-setting, and other requirements.

Disperse dyes are first pasted with a synthetic dispersing agent (1% to 2%) and hot water. The dye is then added to the bath set with 2% soap or detergent (based on the weight of the goods) and 1% alkali, such as tri- or tetrasodium phosphate. At the starting temperatures of 100 - 110 F, exhaustion takes place rather slowly. However, as the temperature is increased, the rate of dyeing increases, with maximum exhaust and transfer at 180 to 205 F.

Acid dyes have good fastness to wet processing and are superior to disperse dyes. While acid dyes are not as effective as disperse dyes in covering warp streaks and filling bars in filament nylon fabrics, they are satisfactory for application by standard procedures to spun nylon goods. These irregularities in fila-

*Trademarks. See section at the end of this article.

ment nylon goods can be minimized by special pretreatments, special dyeing techniques utilizing cationic or anionic agents, proper selection of colors, and dyeing at temperatures above the boil.

Acid dyes, preferably the neutral-dyeing types, in light to medium dark shades, are applied to nylon at atmospheric pressure by aqueous dyeing methods. Dyeings are started at 110 F, after which the bath is heated to 200 to 212 F in about a half hour. Acetic acid can then be added until a satisfactory exhaust is obtained. Heavier shades require greater amounts of acid (acetic or formic) to effect complete exhaustion.

Filament nylon goods are generally started from a neutral bath; spun nylon from an alkaline bath (pH 8.5 - 9.0). For filament nylon, closed equipment is preferred. For dark shades it is difficult to obtain a satisfactory degree of exhaustion unless a full boil (212 F) can be maintained.

Neutral dyeing metalized dyes ("Capracyl" dyes) are applied to spun nylon from an alkaline (ammonia) bath containing a nonionic assistant such as 2% "Capracyl" Leveling Salt. Dyeing temperatures of 180 to 212 F are preferred, and exhaustion is effected with ammonium acetate or some similar acid-forming salt. Deeper shades may require the addition of acetic acid. In either case the final pH of the bath is 4 to 6.

High-temperature acid dyeings on nylon exhibit increased penetration, better build-up of shade, improved wet fastness, and better leveling properties. The preferred procedure is to dye at 235 to 250 F, using 2% "Duponol" D Paste surface active agent. "Duponol" D Paste enhances the transfer and minimizes the initial tendency of the dyes to be absorbed unevelly. With a proper selection of dyes, high temperature dyeing will produce good coverage in fabrics that normally exhibit barre.

Nylon is also dyed with selected vat dyes (particularly in blends with cotton or rayon) for end uses such as men's hosiery and athletic jerseys, where extremely good fastness to washing is desired.

For filament nylon fabrics, closed equipment is preferred (jig shown here was open when photo was taken).

POLYESTER FIBERS—"DACRON"

Two classes of dyes are recommended for use on "Dacron" polyester fiber, namely:

1. Disperse dyes.
2. Developed (azoic) dyes.

The disperse and developed dyes possess generally satisfactory all-round fastness properties, which in many cases are equal to those of the vat dyes on cotton or rayon.

Because the rate of dye absorption on "Dacron" under conventional dyeing conditions is usually too low for satisfactory mill operation, special dyeing procedures are necessary to increase the rate of dye absorption. The three methods used to accomplish this are:

1. Carrier dyeing.
2. High temperature (pressure) dyeing.
3. Thermosol dyeing.

Disperse Dyes. The affinity of "Dacron" for disperse dyes is equal to and in some cases greater than that of nylon or acetate; however, the rate of dyeing is too low for practicality under normal nylon or acetate dyeing conditions. Any one of the three methods above are therefore required to produce a complete range of shades on this fiber.

When disperse dyes are properly applied to "Dacron" polyester fiber, they exhibit good fastness to washing and to crocking. With selected colors, fastness to light is also good to excellent; however,

this property does vary with the individual dye and is affected adversely by some carriers if they remain in the fiber after dyeing.

Some disperse dyes on "Dacron" are susceptible to sublimation; i.e., the vaporization of dye from the fiber by heat. During operations such as pressing or heat-setting, some dye may be sublimed and cause a shade change. In addition, undyed fibers, when present in a fabric, are often stained by the vaporized dye. Dyes vary widely in their fastness to sublimation, and the degree to which dye sublimation takes place is dependent on both temperature and duration of exposure.

Selected members of the older types of disperse dyes, along with the newly developed "Latyl" dyes, will produce a complete range of shades on "Dacron" having good light, washing, and sublimation fastness, as well as good build-up and level-dyeing properties.

Developed (Azoic) Dyes. These give good black, navy, and other shades on "Dacron." Shades with generally good fastness at a cost considerably less than that of the direct dyeing types are possible. High temperature (pressure) equipment can be used for applying the base and naphthol simultaneously.

If such equipment is not available, the base can be applied by means of a carrier with the naphthol applied in a subsequent bath. Recommended dyes include "Latyl" Diazo Black B or "Acetamine" Diazo Black RB for a black, "Acetamine" Diazo Black 3B (Pr. 58) for a navy, "Acetamine" Orange GR (Pr. 43) for a maroon, etc.

Dyeing Methods. Conventional acetate or nylon methods are suitable only for obtaining pastel shades on "Dacron." Temperatures should be as near the boil as possible. The wet fastness should be checked to be sure it is satisfactory. Recommended dyeing procedures are as follows:

Carrier Dyeing. Carriers are dyeing assistants which increase the rate of penetration of disperse dyes into the "Dacron" fibers. Materials which have been used commercially include benzoic and salicylic acid, ortho- and para phenylphenol, biphenyl, phenylmethyl carbinol, mono- and polychlorinated benzenes, and methyl salicylate. Many of these are available as proprietary products, in which form they are generally combined with dispersing or emulsifying agents.

A detailed procedure for dyeing with "Dowicide" A (sodium salt of orthophenylphenol), probably the most widely used carrier, is as follows:

1. Set the bath at 120 - 140 F with 0.25 to 0.5 gram per liter "Alkanol" HCS surface active agent and 0.25 gram per liter "Avitone" T softener.

2. Dissolve *completely* in water at 180 F 5.0 grams per liter "Dowicide" A, 0.2 gram per liter caustic soda, and 0.1 gram per liter ammonium hydroxide (conc.).

3. Add the carrier solution to the dyeing machine, mix well, and immediately begin slow acidification with dilute acetic acid (less than 10%) to pH 5-6.

4. Paste disperse dyes very thoroughly with 1.0 to 1.5 grams per liter of "Avitone" T softener and dilute well with hot water.

5. Add the pasted dye and raise the temperature during 45 minutes to the boil. A minimum of two hours at the boil is required to produce a well penetrated dyeing.

This procedure can be modified in several ways. For example, the acidification of the carrier can be simplified by replacing the acetic acid with an amount of diammonium phosphate equal to the weight of "Dowicide" A. Another alternative is to use an equal amount of monosodium phosphate. The former produces a dyebath with a pH of about 9, which on boiling is lowered to a pH of 6 to 8; while the latter produces a pH of 7 to 7.5, which will hold throughout the dyeing.

Residual orthophenylphenol, in the finished dyeing, is frequently removed by scouring at 200 - 205 F, preferably with caustic alkali. The only completely effective method which has been found for removing o-phenylphenol is sublimation at temperatures similar to those used for curing resins.

Easier to use is "Latyl" Carrier A. This is a white, dispersible powder which can be pasted with warm water and poured directly into the dyebath at any point during the dyeing operation, but generally before the dye is added. In beck dyeings, 5.0 to 7.0 grams per liter are recommended, depending upon the depth of shade; while jig dyeings require 2.5% to 5.0% on the weight of the goods for light to medium shades, and 10.0% to 12.0% for heavy shades.

In all dyeings with "Latyl" Carrier A it is important to use temperatures as near to the boil as possible. Closed becks or jigs must therefore be used.

For black and navy shades, the dye is applied with a carrier, as are the disperse dyes. Following this, the developer is applied in a fresh bath without a carrier for one hour at the boil. Then the material is diazotized with 10.0% sodium nitrite and 20.0% sulfuric acid. This is started cold, the temperature raised to 180 - 190 F and run for one-half hour. For the production of scarlet, red and maroon shades both the base and the developer may be applied simultaneously in the same bath.

High Temperature (Pressure) Dyeing. Dyeing at temperatures above the boil results in better levelness, better color yield and fastness properties, savings in time and chemicals, and better reproducibility from lot to lot in comparison with carrier dyeing. Machines capable of maintaining temperatures of 250 F or higher are required for efficient dyeing under pressure.

A typical procedure is to set the bath at 130 with 0.25 gram per liter "Alkanol" HCS surface active agent and the disperse dyes previously pasted with "Avitone" T softener. The temperature is raised to 212 F over twenty to thirty minutes. Acetic acid is added over twenty or thirty minutes to lower the pH to about 4, and the temperature is then raised to 250 F in about one-half hour. The dyeing is run for one to two hours. After cooling and overflow rinsing, the dyeing is scoured for fifteen minutes at 180 F with "Duponol" RA surface active agent. Dark shades can be scoured

with caustic soda and hydrosulfite when necessary.

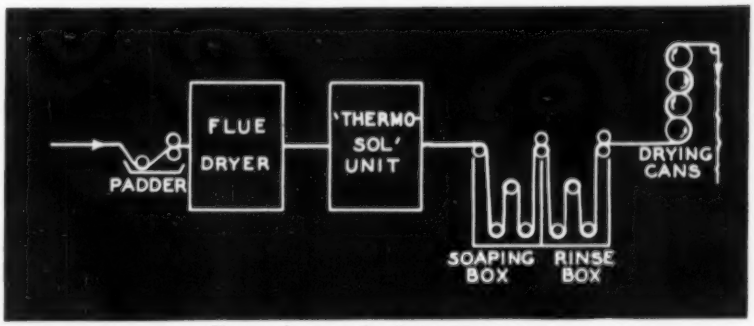
Dye selection is important in pressure dyeing since such factors as stability, tarring properties, exhaust rates, and transfer properties must be considered. Many of the "Latyl" dyes are suitable for dyeing at 250 F.

Thermosol Dyeing. The Thermosol process represents an immense saving in time and can be used for both filament and spun forms of "Dacron" polyester fiber. It consists of a padding operation in which disperse dyes are put on the fabric, followed by a heat treatment to effect dye penetration into the fiber. Good color value and outstanding fastness properties result.

Dye selection is important. The dyes must be chosen for their color yield, fastness properties and ability to withstand heat.

Disperse dyes are dispersed for padding by pasting with Compound No. 8-S or "Avitone" T softener and hot water, and this dispersion is added to a thickener, such as 0.15 ounce per gallon of "Keltex," "Superclear" Gum, or Du Pont Sodium CMC. The thickener is used to assist in obtaining smooth paddings and to minimize migration of the dyes. A surface active agent, such as "Alkanol" WXN or "Duponol" D Paste, at a concentration of 0.3 ounce per gallon is also added to the pad liquor. The fabric is padded at a temperature between 120 and 130 F.

Drying at about 275 F after padding also helps to control migration. It is essential that heat be applied evenly to both sides of the fabric. Thermosol treating or heat fixation of disperse dyes is accomplished in 1½ minutes at 390 - 410 F in a roller-type oven or for shorter times at higher temperatures in radiant heat units.



Thermosol process for dyeing "Dacron."

ACRYLIC, MODIFIED ACRYLIC, AND VINYL FIBERS

"ORLON" ACRYLIC FIBER

"Orlon," at the present time, is available only in the form of tow and staple. Classes of dyes recommended for this fiber are:

1. Disperse dyes.
2. Cationic dyes.
3. Acid dyes.

Disperse Dyes. Selected disperse dyes are used for all forms of "Orlon"—stock, tow, yarns, knit goods, and woven fabrics—because of their excellent leveling properties and their excellent fastness properties. Their use is usually limited to light shades.

Disperse dyes are applied to "Orlon" from an aqueous bath containing about 0.5% of a detergent such as "Duponol" RA surface active agent. The dyes are first pasted with an equal amount of Compound No. 8-S or "Avitone" T softener, stirred into water and then added to the dyebath. Dyeing is carried out for one to two hours at the boil. Because of their good leveling and transfer properties, commercial dyeings with this class of dyes have been essentially trouble-free.

Cationic Dyes. The most important class of colors for "Orlon" is the cationic or basic dye group. With these it is possible to obtain a full range of brilliant shades having excellent wetfastness and fair to excellent lightfastness in all types of equipment in which "Orlon" is dyed. By relatively simple direct dyeing procedures, light shades, as well as deep shades, can be dyed at the boil or at higher temperatures (to 230 F) in pressurized equipment.

Cationic dyes are applied directly from a bath containing acetic acid at a pH of 4.5 to 5.5. Some of these dyes may show a change in shade at a pH below 4, while others are not stable at or above pH 7.

Fifteen new "Sevron" cationic dyes have been developed by Du Pont specifically for the dyeing of "Orlon." A number of older basic dyes, e.g., Du Pont Victoria Green Small Crystals, Du Pont Brilliant Green Crystals, Du Pont Fuchsine, and "Lithosol" Blue 6G are also used.

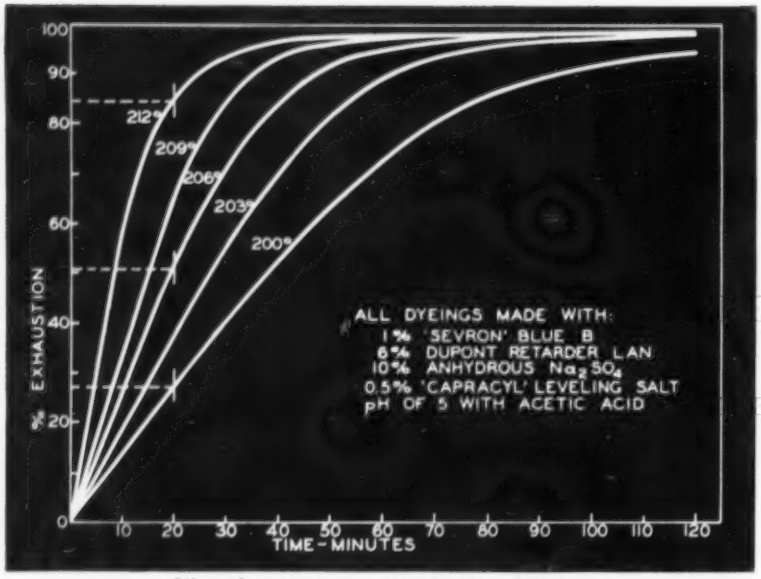
The following dyebath formulation is satisfactory for dyeing these, either at the boil or under pressure:

1.0% acetic acid 56%
0.3% sodium acetate
10.0% Glauber's Salt
0.5% "Alkanol" HCS surface active agent
x% cationic dyes.
Dye for 1 to 2 hours at the boil.

Prior to dyeing, it may be advisable to scour the material. About 0.5 to 1.0% of a nonionic agent such as "Alkanol" HCS surface active agent is recommended. Fifteen minutes at 160 F is usually sufficient. The use of ammonia should be avoided in scouring "Orlon."

The cationic dyes are best dissolved by pasting with one half of the acetic acid required for dyeing. Boiling water is then added and the mixture stirred until solution is effected.

To insure levelness for light shades with cationic dyes, a retarder such as Du Pont Retarder LAN is used to slow up the rate of dyeing. For pastel shades (less



Effect of temperature on rate of dyeing of "Orlon."

than 0.1% of dye) about 10.0 to 8.0% of retarder will be required, for darker shades (3.0% or higher) only 2.0% or less. The temperature can be raised rapidly to 180 F, but from this point on to the boil a slow rate of rise is recommended to insure maximum levelness.

Darker shades require a scour after dyeing to remove any unfixed surface color. A treatment with 0.5 to 1.0% of "Alkanol" HCS surface active agent and 0.5% acetic acid for 15 minutes at 160 F is usually sufficient. Anionic detergents such as alcohol sulfates should not be used.

Acid Dyes. The economy and fastness of acid dyes, applied by the cuprous ion* method, make them attractive for application to "Orlon" stock, particularly in shades of black, dark brown, navy, etc. Pressure dyeing (usually at 225 F) is necessary to utilize those colors offering maximum economy and fastness. The cuprous ion method is used very little in dyeing at the boil or in piece dyeing.

The amount of copper sulfate generally employed is approximately equivalent to the amount of dye used. However, no less than 1.0% of copper sulfate should be used. For reducing the copper from the cupric to the cuprous state, either sodium bisulfite or a mixture of equal parts of sodium bisulfite and glyoxal (commercial 30% solution) is used.

Suggested amounts of reducing agent are 0.25 part of sodium bisulfite and 1.0 part copper sulfate, or 0.25 part sodium bisulfite and 0.25 part glyoxal, for 1.0 part copper sulfate. For light shades, no less than 0.5% sodium bisulfite is used. For dyeings made at the boil, the preferred reducing agent is hydroxyl ammonium sulfate.

*U. S. patents of Union Carbide Corp. available for licensing.

"ACRILAN" ACRYLIC FIBER

"Acrilan" is extremely versatile in respect to the number of dye classes applicable to this fiber. It is dyeable with:

1. Disperse dyes
2. Cationic dyes
3. Acid dyes
4. Acid and neutral dyeing metalized dyes
5. Chrome dyes.

In addition, vat dyes and vat leuco esters, certain direct, sulfur, and naphthol dyes have affinity for "Acrilan," but are of lesser importance for its dyeing.

Disperse Dyes. These are one of the more important classes of dyes for "Acrilan." Selected members can be used for all shades ranging from pastels to full blacks. They are applied at 205 F or above in the presence of minimum amounts of nonionic dispersing agents. The well-dispersed dyes are added to the dyebath at 120 F, the temperature is raised to the boil over thirty minutes, and boiling is continued for one to two hours, depending upon the depth of shade. Heavy dyeings generally require a scour at 120 F with a nonionic detergent and tetrasodium pyrophosphate to remove unfixed dye.

Cationic Dyes. Basic and cationic dyes are employed where brightness of shade is of primary importance. These dyes build up well on "Acrilan," but as the rate of exhaustion is slower than on "Orlon" acrylic fiber, retarding agents are usually unnecessary.

The cationic dyes are dissolved with the aid of a small amount of acetic acid or alcohol and are added to the dyebath set at 120 F and containing 5.0% ammonium acetate and 0.5% "Alkanol" HCS surface active agent. The temperature is then raised to the boil and dyeing continued for thirty minutes to two hours, depending upon the depth of shade.

Mixtures of disperse and cationic dyes can be used for many dark shades. In this case, the dyes must be dissolved and added to the dyebath separately. The pH is maintained at approximately 5.5 by the addition of 5.0% of ammonium sulfate to the dyebath.

Acid, Acid- and Neutral-Dyeing Metalized Dyes. These dyes are all applied by essentially the same technique. Selected acid and metalized dyes require sulfuric acid for maximum exhaustion and fiber penetration. The neutral-dyeing metalized types are best dyed with formic acid, for sulfuric acid has an adverse effect on light fastness of the final dyeings.

The bath is set at 120 F with 3.0% "Capracyl" Leveling Salt and 3.0% of formic acid. The tem-

perature is raised to the boil over thirty minutes and 3.0% of sulfuric acid added. After thirty minutes, an additional 3.0% of sulfuric acid is added and dyeing continued for one hour or more. When finished, the material is cooled, rinsed, neutralized with sodium bicarbonate, and rinsed. The neutral dyeing premetalized colors are dyed with formic acid only, usually requiring 6.0% to 8.0%.

Chrome Dyes. These are used primarily for dark shades where maximum wet fastness properties are required. Chrome dyes are applied in essentially the same manner as acid dyes and are chromed over in a second bath with 1.0% to 2.0% of sodium dichromate and 2.0% to 3.0% of formic acid for one hour at 205 to 212 F.

"CRESLAN"

"Creslan" will not be available commercially until late 1958 and experience in dyeing this fiber is therefore somewhat limited. Dyeing methods recommended for "Acrilan" should be generally applicable to the current "Creslan."

Disperse dyes have only fair build-up and moderate fastness properties. Cationic dyes have fair build-up and light fastness, but good washing fastness. Neutral- and acid-dyeing metalized, acid, and chrome dyes are stressed for the dyeing of "Creslan." Some direct dyes have good affinity, but dyeings must be aftertreated to obtain good fastness.

DYNEL

This fiber is a copolymer of vinyl chloride and acrylonitrile. It is dyeable primarily with disperse, neutral-dyeing metalized, selected neutral-dyeing acid, and some cationic dyes.

Disperse Dyes. Dynel has good affinity for practically all disperse dyes. Selected members of this class have good fastness properties. Dyeings can be made at temperatures as low as 190 F, but better tinctorial value is generally obtained at or near the boil. Dispersing agents should be held to a minimum since excesses will reduce the affinity of the fiber for the dyes.

Neutral-Dyeing Metalized Dyes. Light to medium shades can be readily produced with selected neutral-dyeing metalized dyes on dynel, which has a direct affinity for this class. Best results are obtained with temperatures at or near the boil and deeper shades can be made with the assistance of a new dynel carrier or swelling agent, DSP-112. This material is readily emulsified and is recommended to be used in quantities of 2.0% to 3.0%, based on the weight of the fiber that is to be dyed.

Acid Dyes. Selected neutral-dyeing acid dyes are applied in depths up to medium shades with the assistance of DSP-112. Dark shades are obtainable through use of the cuprous ion technique, developed for this fiber.

The bath is set with the necessary dye and about 0.1% of sulfuric acid to give a pH of 6.5. The temperature is raised to the boil and a reduced copper solution added slowly over a twenty-minute period. To prepare the reduced copper solution, 1.0% of copper sulfate is dissolved in a small amount of warm water. Four-tenths per cent of zinc formaldehyde sulfoxylate is dissolved separately in lukewarm water. Just prior to use, both solutions are mixed together.

Cationic Dyes. Many cationic dyes are applied to dynel by methods recommended for "Orlon" acrylic fiber. Increased tinctorial value may be obtained by the slow addition of 1.0% to 2.0% of an anionic agent, e.g., "Duponol" D Paste surface active agent, after dyeing has progressed from one-half to one hour at the boil.

Relustering. All dyeing on dynel must be relustered after dyeing. Several methods to accomplish this can be used:

1. Heat five to ten minutes at 240 F.
2. Steam two to five minutes at 40 - 60 pounds pressure.
3. Boil in 25% solution of Glauber's salt.

Method 3 is the least desirable for piece goods, but is used in the dyeing of stock and yarns.

"VEREL"

The manufacturer of "Verel" recommends neutral-dyeing metalized dyes, disperse dyes, and cationic dyes for the coloration of this fiber. In addition, selected acid dyes can be applied by the cuprous ion method.

Neutral-Dyeing Metalized Dyes. These dyes exhibit the best all-round fastness properties. Light to medium shades are obtained by dyeing for one to two hours at 212 F in a bath containing:

0.5% "Capracyl" Leveling Salt
5.0% Ammonium acetate
2.0% Acetic acid

Darker shades require a carrier or dyeing assistant and are best dyed at 200 F. Dyeing is carried out for 45 minutes with:

3.0% "Verel" Dyeing Assistant
5.0% Ammonium acetate

after which time an additional 3.0% of dyeing assistant and 2.0% of acetic acid 56% are added. Dyeing is continued for one hour and the material is then given a light scour with 2.0% of "Duponol" RA surface active agent.

Dyeings may also be made with 5.0 grams per liter of "Dowicide" A (adjusted to pH 5.5 with acetic acid) in the presence of 1.0 gram per liter of "Avitone" T softener. In this case, however, dyeing temperature of 160 F should not be exceeded. *(Continued next page)*

Disperse Dyes. Light to medium shades are obtained by dyeing for two hours at the boil in a bath containing a suitable dispersing agent such as "Avitone" T softener.

Deeper shades are preferably dyed at 200 F with 6.0% of "Verel" Dyeing Assistant and 2.0% of acetic acid or with 5.0 grams per liter of "Dowicide" A (pH 5.5) at 160 F.

Cationic Dyes. "Verel" exhibits good affinity for cationic dyes when applied at either 180 or 212 F without a carrier or dyeing assistant. In general, brighter and stronger dyeings with better light fastness are obtained at the lower temperature.

Dyeing is carried out for one to two hours in a bath containing:

0.5% "Alkanol" HCS surface active agent
0.3% sodium acetate
0.4% acetic acid glacial

DINITRILE FIBER—"DARLAN"

"Darlan" can be dyed with the following classes of dyes:

1. Disperse dyes
2. Azoic dyes
3. Cationic dyes

Although "Darlan" has ample affinity for these classes of dyes, the rate at which they are absorbed by the fiber and diffuse into it is lower than that of most fibers. To increase the rate of dyeing, carriers or high temperatures (240 - 260 F) are used. Recommended carriers include orthophenylphenol, methyl salicylate and "Latyl" Carrier A. Orthophenylphenol is not compatible with cationic dyes.

Disperse Dyes. Disperse dyes, when applied by conventional dyeing procedures, are suitable only for the production of pastel shades. For heavier shades a carrier is required, e.g., 5.0 grams per liter "Dowicide" A or "Latyl" Carrier A.

Procedures are the same as previously described under the dyeing of "Dacron." Alternatively, disperse dyes can be applied at high temperatures under pressure at 240 - 250 F.

Azoic Dyes. For navy and black shades these are best applied with a carrier, following procedures outlined for disperse dyes. The developer is then applied in a fresh bath for one hour at the boil, following which the material is diazotized in a bath containing 10.0% of sodium nitrate and 20.0% of sulfuric acid. Diazotization is started cold and finished by running thirty minutes at 160 F.

For red, scarlet, and maroon shades the developer and the base may be applied together in the same bath.

Cationic Dyes. Unlike "Orlon" acrylic fiber, anionic agents must be present in the dyebath when applying cationic dyes to "Darlan." For example, where "Latyl" Carrier A is used, 0.5 gram per liter of an anionic material such as "Duponol" RA or "Alkanol" B surface active agent must be present in the bath.

The cationic dyes are pasted with 0.25% glacial acetic acid, diluted with hot water and dyeing carried out for one to two hours at the boil, depending upon the depth of shade. The dyed material should then be scoured for fifteen minutes at 200 F with 1% to 2% "Duponol" RA and 1.0% of caustic soda.

NITRILE ALLOY FIBER—"ZEFRAN"

"Zefran" is probably the most dyeable of all the synthetic fibers. It has affinity for acid (dyed direct or with cuprous ion), cationic, neutral- and acid-dyeing metalized, chrome, direct, disperse, "Naphthanil," sulfur, and vat dyes. It also lends itself to continuous vat dyeing by pad-steam procedures.

When judged on the basis of light and washing fastness it would appear that the following classes of dyes will find greatest use on this fiber:

1. Neutral- and acid-dyeing metalized.
2. Direct (copper aftertreated).
3. Vat.
4. "Naphthanil."

Metalized Dyes. Acid dyeing types of this class are applied at the boil with 8.0% of sulfuric acid, while the neutral dyeing types are applied with 5.0% of ammonium acetate and 2.0% of acetic acid 56%. Good to excellent light fastness and good washing fastness are obtained.

Direct Dyes. These are best applied at the boil with 15.0% of common salt and aftertreated at 140 F with 2.0% of a coppered fixative. Selected dyes have good light and washing fastness.

Vat Dyes. When dyed by the reduced method, conventional cotton procedures are followed but the bath should not contain more than 5.0 grams per liter sodium hydroxide and 5.0 grams per liter sodium hydrosulfite. Higher amounts of caustic can cause a yellowing of the fiber which is not fast to light.

For continuous vat color application the pigment pad-chemical pad-steam method has given good results. Dyeing of blends of "Zefran" with either rayon or cotton is done satisfactorily in this way.

"Naphthanil" Dyes. "Zefran" is dyed in a bath containing a suitable "Naphthanil" and not more than 0.25 ounce per gallon of sodium hydroxide. The temperature is raised to 160 F, 30.0% common salt added, and dyeing continued for forty-five minutes.

After rinsing the material is entered into a fresh bath containing a suitable "Naphthanil" diazo salt at 80 F. The temperature is then raised to 140 F, and dyeing continued for thirty minutes. This is followed by a thirty-minute scour at 170 F with 2.0% of "Duponol" RA surface active agent.

POLYVINYLIDENE CHLORIDE FIBER—"SARAN"

"Saran" is dyeable with disperse and selected azoic dyes. The disperse dyes are applied from a bath containing 0.25% of "Duponol" D Paste (on weight of fiber) at a temperature of 200 F.

A black having good light and washing fastness is produced by dyeing for 1½ hours at 200 F with:

5.0% "Acetamine" Diazo Black RB
2.5% "Duponol" D Paste

then diazotized for ½ hour at 190 F with:

10.0% sodium nitrite
20.0% sulfuric acid

and developed for one hour at 200 F with

3.0% "Acetamine" Developer AD Extra.

CELLULOSIC AND PROTEIN FIBERS

Rayon is the oldest of the man-made fibers. Since it is pure cellulose it is, of course, dyeable with the same classes of dyes normally employed for cotton. These include direct, developed, azoic, and vat dyes.

There have been essentially no significant changes in dyeing procedures during the past years. Direct and developed dyes are applied with common salt at temperatures ranging between 180 F and 205 F, with the latter dyes subsequently diazotized in a cold bath and developed with a suitable agent such as beta naphthol. There is some interest developing in high temperature (pressure) dyeing of direct dyes, particularly for rayon packages.

Azoic dyes are formed on the fiber by impregnating the material with a suitable "Naphthanil" and coupling to a "Naphthanil" diazo salt or a diazotized base.

Vat dyes are applied by dyeing with the leuco vat produced by reduction of the dye with sodium hydroxide and sodium hydrosulfite. This is followed by an oxidation step with hydrogen peroxide, sodium perborate or a combination of sodium bichromate and acetic acid.

Acetate is generally dyed with disperse and selected azoic dyes. Disperse dyes are generally pasted with a suitable surface active agent, added to the bath, and dyeing carried out at 180 F.

Selected azoic colors, primarily for black and navy shades, are applied in a similar manner but are then diazotized cold and developed with a suitable product such as beta-oxynaphthoic acid.

"Arnel" is a triacetate fiber. As such, it is dyeable with disperse and selected azoic dyes in much the same manner as regular acetate. However, higher dyeing temperatures are required and dyeing at 205 to 212 F is recommended.

For dark shades it is often necessary to use a carrier in order to effect satisfactory exhaustion and fiber penetration. From 3.0 to 5.0 grams per liter of tripropyl phosphate or of "Latyl" Carrier A is recommended.

"Arnel" fabrics require heat-setting after dyeing. This is done at temperatures between 395 and 450 F. Heat setting reduces fabric shrinkage, raises the safe ironing temperatures, and imparts wrinkle resistance. Dyes penetrate the fiber more fully during this treatment, with a resulting improvement in washing fastness.

"Vicara" is a protein fiber produced from corn zein. As such, it is similar to wool in its dyeing behavior and can be colored with acid, acid- and neutral-dyeing metalized, selected direct, and chrome colors.

The dyes are usually applied at temperatures between 195 and 212 F, with sulfuric, formic, or acetic acid, or acid-forming salts as dyeing assistants, depending upon the class of dyes being used.

Trademarks

"Acrilan"—The Chemstrand Corp.
"Arnel"—Celanese Corp. of America.
"Creslan" — American Cyanamid Co.
"Darlan"—B. F. Goodrich Chemical Co.
"Dowicide"—The Dow Chemical Co.
"Keltex"—Kelco Co.
"Rilsan"—Societe Organico
"Superclear"—Jacques Wolf & Co.
"Verel"—Eastman Chemical Products, Inc.
"Vicara"—Virginia-Carolina Chemical Co.
"Zefran"—The Dow Chemical Co.

The following are registered trademarks of E. I. du Pont de Nemours & Co., Inc.:

"Acetamine"
"Alkanol"
"Avitone"
"Capracyl"
"Chromacyl"
"Dacron"
"Latyl"
"Lithosol"
"Naphthanil"
"Orlon"
"Teflon"

Industry's 1956 accident frequency and severity rates up over 1955

■ In 1956 there were 5.29 disabling injuries per one million man-hours in the textile industry, the National Safety Council announced recently. A disabling injury, as defined by the Council, is one which results in the complete inability of an injured person to perform his usual activities for a period of at least 24 hours after the time of injury, or results in some permanent impairment.

While this record was better than the average injury frequency rate for employees of all forty of the industries submitting reports to the Council — 6.38, or a reduction of 8 per cent from the previous year—it was 4 per cent more than the textile industry rate for 1955.

The textile industry severity rate (time charges in days per one million man-hours) for 1956 was 455. Again this is less than the all-industries average of 733, but it is an increase of 8 per cent over the 1955 textile industry rate. Half of the 40 industries cut their severity rates or remained the same.

Chemical principles for the

Discussed are: (1) problems of finishing man-made fibers, (2) scientific approaches which may be used to devise processes and chemicals for finishing them, (3) recent advances in this field, and (4) work which needs to be done to yield better textiles

by D. D. Gagliardi
Exclusive*

ALL MAN-MADE fibers have one or several chemical, physical, mechanical, biological, and aesthetic properties which set them apart from other fibers and make them more useful in constructing a specific textile item. In many cases, unique properties have been introduced in man-made fibers which had never been available in the naturally occurring fibers.

On the other hand, not all of the desirable properties of the natural fibers are present in any one man-made fiber developed to date. Indeed, it seems very unlikely that any one fiber will ever be developed which will have all the properties required for all textile end-uses.

Contrary to the feelings prevalent in some areas a decade ago, there is no longer any search for a universal miracle fiber. Rather now the philosophy is to engineer fibers for specific end-uses where their properties can best be utilized to meet the performance requirements. Added to this is the realization derived from experimental data that combinations or blends of fibers can give end-use properties better than either fiber could give alone.

*A contribution from Gagliardi Research Corporation's Laboratory, 5454 Post Road, East Greenwich, R. I.

In constructing a textile material with man-made fibers, the major properties needed for the end-use item can be produced by choosing the proper fiber type and by geometrically arranging the fibers in a structure which will best utilize the fiber properties.

Having made the textile structure, however, it is in most cases found that there are still other properties desired which the fiber type and the geometric construction did not produce by themselves. Consequently, it becomes necessary to do something else to the material which was constructed in order to make it suitable for the intended use. This extra and last operation is that of finishing.

In this article we will try to (a) systematically outline the problems of finishing man-made fibers as a whole, (b) define the scientific approaches which may be used to devise processes and chemicals for such finishing, (c) describe some recent advances which have been made, and (d) suggest other work which needs to be done to produce better textiles.

THE NEED FOR FINISHING PROCESSES

As it is with textiles made from the natural fibers, a textile structure derived from man-made fibers may require that either slight or major modifications be produced by a finishing operation. The slight modifications may cover such properties as appearance and hand, while the major modifications may involve a host of important functional effects.

Finishing products and processes may be used, therefore, for any one or several of the reasons given below, either on only one or on all textiles constructed from man-made fibers:

1) Dimensional stability to heat or water
2) Resistance to wrinkling
3) Appearance retention
4) Resistance to growth of biological agents
5) Wear resistance
6) Heat, light, and gas (fume fading) resistance
7) Pilling resistance
8) Soiling resistance
9) Water and oil repellency
10) Flame resistance
11) Improved adhesion to other materials
12) Softening or stiffening
13) Improved sewing and seam strengths
14) Resistance to fraying or slipping
15) Static resistance

One of the above properties may be important for textile materials made from one fiber but not from another. For example, antistatic finishing effects are necessary for the hydrophobic man-made fibers, but not for the rayon, protein, or polyvinyl alcohol fibers.

Dimensional stability to washing is an important modification for the hydrophilic fibers but is not as important for the hydrophobic fibers, while the opposite is true for dimensional stability to heat.

On the other hand, certain properties may need to be improved by finishes on all fibers. This includes heat and light resistance, water and oil repellency,

finishing of man-made fibers

soiling resistance, and resistance to bacteria and odor formation.

Certain finishing modifications are necessary on several man-made fibers used in related industrial applications. This includes improving the adhesion of rayon, nylon, and steel tire cord yarns to rubber carcass in tires and in rubber belts. It also includes improving the adhesion of glass yarns and fabrics to polyester, alkyd, epoxy, isocyanate, and amino plastics in laminates and moldings. For glass textiles, again, finishes are necessary to improve adhesion of pigments and to improve flexing, abrasion, and knot resistance in all uses.

In some cases of finishing with one process or product, it becomes necessary to use a second finishing agent in order to counteract some undesirable change in properties produced by the first. This is exemplified by the stiffening of nylon laces and nets with alkylated melamine and urea formaldehyde resins, which make the nylon fabric flammable. In such a case, a flameproofing agent must now be used in finishing in order to restore the original flame resistance of the nylon.

MECHANISMS FOR FINISHING

Once a textile item (from any fiber) has been constructed and suitably colored, there exist three general basic methods by which the textile finisher may modify the properties of the textile material presented to him for finishing. These are:

1) Mechanical processes: compressing, stretching, shrinking, calendering, embossing

2) Physico-chemical processes: heating, steaming, irradiation, high-frequency vibrations

3) Chemical processes: coating, impregnation or reaction with chemical products

For specific fabric modifications, any one or several of these methods may be used to obtain the desired results. In the case of textiles from hydrophobic man-made fibers, the physico-chemical processes of finishing have achieved great importance in modifying their properties, the most prominent of these being the heat setting and steaming processes.

Recent discoveries that high energy vibrations and atomic radiation can produce profound changes in the properties of high polymers have initiated studies in various quarters to develop such methods for textile finishing purposes.

The most important method of producing new functional properties in any textile material already constructed is that of finishing with a chemical agent. Compared to textiles made with natural fibers, the use of chemical finishing agents to modify man-made fiber textiles is still in its infancy and much needs to be done on the chemistry of the products and on the practical methods of applying such products.

MECHANISMS FOR DEPOSITING CHEMICAL PRODUCTS

A given textile structure may be modified to have new specific end use properties through the deposition of a chemical substance in or on the fibers. The deposition of the substance, or finishing agent, may involve one, and in some cases, several of the following mechanisms:

1) Reaction of the finishing agent with the fibers

2) Reaction of the finishing agent with itself

3) Specific adhesion of the finishing agent to the fiber

4) Substantivity of the finishing agent to the fiber

5) Surface coating of the fibers —no reaction

6) Internal loading of the fibers —no reaction

All of these mechanisms are involved in the presently used finishing processes for all textiles. In the case of some man-made fibers, however, some mechanisms are more useful than others, while others do not work at all in producing new properties.

In considering permanency of the effects to be produced by a particular finishing agent, the ideal solution would be to use a chemical which reacted with the fiber polymer molecule to produce a permanent non - hydrolyzable bond. This is theoretically possible since some of the man-made fibers do contain functional groups either in the repeating polymer structure or at the ends of the polymer molecules, as for example:

Hydroxyl	-OH
Amino	-NH_2
Carboxyl	-COOH
Amido	-NHCO-
Cyano	-CN
Chloride	-CH_2Cl
Ester	-COOR

As will be shown later, many finishing agents could be made to react with such groups in the fibers. The problem of practical chemical modification of some man-made fibers, however, is complicated by the inaccessibility of the reactive groups in the fiber polymer to the reactive groups in the finishing agent. With regenerated cellulose fibers this is relatively not a problem because of the swelling of such fibers in water, and because of the ease with which simple chemicals diffuse in the fiber structure and can react with the cellulose hydroxyls if proper functional groups are present in the finishing agents. Even with acetate, the use of alcohol-

water systems allows for diffusion of some finishing chemicals.

In the case of the strongly hydrophobic fibers, normal aqueous finishing procedures are not conducive to internal fiber modification. Consequently, if a high degree of fiber modification is desired in such fibers as nylon, Dacron, or Orlon, then selected swelling media must be used or very long diffusion times must be allowed from an aqueous bath.

The use of so-called penetrants has improved the dyeing of some of the man-made fibers. This approach has not yet been widely studied for finishing with reactive chemicals. Selected strong swelling solvent systems for man-made fibers may be undesirable since these can lead to disorientation of the polymer structure and loss of desirable basic fiber properties.

For many finishing effects, internal modification of the fibers is not necessary. In order to obtain permanency in finishes which involve only deposition of a chemical on the fibers, the possibilities exist of reacting the finishing agent with the functional group available on the specific surface of the fibers. This is a very limited reaction and could not allow for deposition of a large amount of finishing agent. The second best process is to deposit chemicals which, after some processing step, are converted into an insoluble state and are left on the fibers through specific adhesion for the fiber surface or simply by mechanical entrapment.

As an alternative, a pre-formed chemical requiring no further chemical processing, can be employed. Here the finishing agent has been preformed and is deposited on the fibers by drying off the solvent from an emulsion, dispersion, or solution. Such finishing agents may or may not show any permanency, depending on their solubilities, specific adhesion, or mechanical entrapping on the fiber surfaces.

REACTIVE GROUPS SUITABLE FOR FINISHES

Assuming that a certain chemical structure "X" has properties which will lead to a specific finishing effect on a fiber, yarn, or fabric, and that it would be desirable that such an effect be permanent, or at least durable for normal use, then there are theoretically a number of ways of fixing such a compound in or on the fibers.

If the base structure "X" has chemical properties that lend themselves to preparing derivatives, then we can consider introducing into the structure "X" any one or several of the following main functional groups:

Methylol	X - CH_2OH
Alkoxymethyl	X - CH_2OR
Aldehyde	X - CHO
Acetal	X - $CH(OR)_2$
Active halogen	X - CH_2Cl
Active methylene	X - $CH{=}CH_2$
Isocyanate	X - NCO
Reactive quaternary	X - $CH_2NR_3.Cl$
Carboxyl	X - COOH
Ester	X - COOR
Ketene	X - $CH{=}C{=}O$
Acyl halides	X - COCl
Epoxy	X - CH(O) - CH_2
Imine	X - CH(NH) - CH_2
Cyclopropane	X - CH(CH_2) - CH_2
Anhydride	X - $(CO)_2O$
Amine	X - NH_2
Mannich base	X - CH_2NR_2
Sulfonyl halides	X - SO_2Cl
Phosphoryl halide	X - POCl
Active hydrogens	X - H

Having made any one of such derivatives of the "X" structure, the possibilities exist of having this finishing agent become a permanent or durable finish through reaction with specific groups in the fiber polymer molecule or through reaction with groups in its own structure to give a resin, polymer, or new derivative which is insoluble in washing or dry cleaning operations.

While theoretically there are literally hundreds of such compounds that could be made, there are very practical considerations which reduce the number of possibilities for commercial utilization of such derivatives of the "X" structure. These considerations include:

1. Availability of raw materials
2. Ease of preparation of the "X" derivative
3. Cost of the finished product
4. Ease of application in common textile plants
5. Rate of reaction with fiber or with itself
6. Toxicity in handling or on the cloth
7. Color produced on cloth
8. Storage stability
9. Undesirable changes in other fabric properties

For example, ester interchange reactions are possible with those fibers containing hydroxyl groups, but such reactions need to be strongly catalyzed and require such long and high temperatures and reaction times that the base fiber being treated is decomposed. Consequently, finishing agents based on obtaining durability through ester interchange reactions in a finishing operation are not very practical.

On the other hand very fast, active, and easy-to-apply products can be made, and are being used, which depend on ether (acetal) interchange reactions for permanency.

Many of the classes of potential finishing agents based on some of the above functional groups are also eliminated for practical textile uses because of the necessity of requiring anhydrous conditions or noxious solvents during the application to the textile material. This is true of many of the theoretical products containing isocyanate, anhydride, ketene, or active halogen groups. Yet there are individual members of some of these classes which have sufficient stability in the presence of water so that they have become commercially useful materials.

Because of toxic vapors, metal corrosion, and the anhydrous conditions required, many potentially useful finishing agents are not on the market in view of the practical limitations of existing plant processing machinery and conditions, although in some cases work is going on to devise entirely new types of textile processing equipment for specific reactions on textiles.

It is unfortunate that most of the textile finishing plants and the suppliers developing finishing chemicals keep conforming to the proposition that they must have simple aqueous treating conditions, otherwise a new finishing technique will not be successful. This proposition is not sound, since by the cooperative efforts of machinery designers and by modification of existing plant conditions, those seemingly radical new products and processes can be economically and technically useful in producing new finishing effects on both man-made and natural fiber textiles.

FINISHES FOR MAN-MADE FIBERS

A number of the more prominent finishing agents used on man-made fiber textiles are described below. The examples given illustrate the various principles of deposition of chemicals described earlier and show how the systematic approach can lead to unique designs of new finishing agents for selected applications.

Rayon, one of the oldest of the man-made fibers, has so far received the greatest attention in finishing research. This is evidenced by the very extensive technical and patent literature on chemicals and processes for modifying rayon textile properties. Moreover, there is voluminous unpublished literature in the files of chemical companies which have worked on developing rayon finishing agents.

For producing dimensional stability, crease resistance, reduced swelling, and higher wet strength properties, it has been well established that cellulose crosslinking agents must be used in finishing (1, 2, 3)*. This has been determined by a number of indirect methods. One simple experiment, however, gives very definitive support and is described below.

A monofunctional N-methoxymethyl ethylene urea and a difunctional N, N'-bis (methoxymethyl) ethylene urea (4) were prepared and reacted on a rayon fabric under similar acidic curing conditions. Since only the difunctional compound could theoretically produce crosslinkages in the fibers, then the changes in properties produced should greatly differ from those given by the monofunctional product.

That this is so is shown by the results obtained when 10% solids of each product were cured on a rayon challis and then scoured to remove unreacted materials. This is given by the data in Table I.

It is seen that both products were fixed in the rayon fibers, but only the difunctional product reduced swelling, produced shrinkage and crease resistance, made the fibers resistant to direct dyes, produced insolubility in a cellulose solvent, and altered fiber properties. The poor chlorine resistance shown by the sample treated with the monofunctional ethylene urea indicates the presence of the amido group -NH in the fibers, since chloroamines were formed. Also, only the difunctional product insolubilized a hydroxyethyl cellulose film when this was cast with 10% product and acid cured.

Many other difunctional and polyfunctional rayon treating finishes have been developed but only a few are now in use. These include formaldehyde treatments, methylol ureas, melamine-formaldehyde resins, acetylene diurea-formaldehyde, methylated urea-formaldehydes, and more recently epoxy resins (5) and acetals (6) of formaldehyde and dialdehydes. Of all these products, only the nonnitrogenous members produce complete resistance to chlorine damage. But of these, only the epoxy agents give a completely non-hydrolyzable and permanent finish. This is due to the fact that epoxy groups in a finish produce true ether bonds with the rayons, while aldehydes and derivatives give acetal bonds which are not stable to acid hydrolysis, although very stable to alkalies.

On rayon fabrics, the epoxy resin finishes promise to produce completely washable fabrics which can be handled like cottons.

In the finishing of acetate and blends with other fibers, the various normal reactants and resins are not very effective in modifying basic fiber and fabric properties. The use of swelling agents such as alcohols aid in finishing but have not been widely accepted.

How select acetate finishes could be developed is demonstrated by the following experiment wherein improved crease re-

TABLE I

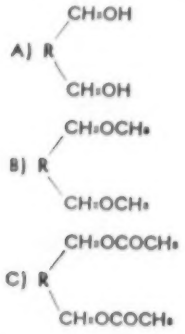
Property Tested	Untreated Rayon	Monofunctional Treatment	Difunctional Treatment
Weight gain	0	7.5	7.3
Swelling, %	101	95	22
Shrinkage, %	12.5	12.0	2.5
Crease recovery (W + F)/2	95	93	145
Direct dyeing	Dyed	Dyed	Immunized
Solubility in Triton B	Soluble	Soluble	Insoluble
Tensile, lb	55	56	54
Tensile after AATCC chlorination test	56	10	55
Tensile strength of filament yarn, gms	350	361	375
Elastic recovery of filament yarn, 5% elongation, %	18	21	85

*Numbers in parentheses refer to references at the end of the article.

TABLE II

Property Tested	Untreated	—CH_2OH Product	—CH_2OCH_3 Product	—CH_2OCOCH_3 Product
Hand	Soft	Harsh	Firm	Soft
Mark-off	None	Excessive	Moderate	None
Crease Resistance	120	110	125	145
Emboss durability	Poor	Poor	Good	Best
Solubility in acetone	Soluble	Soluble	Insoluble	Insoluble
Glazing at 350 F	High	High	None	None
Luster	Good	Poor	Mild	Good
Tear strength warp, lb	7.5	3.2	5.6	6.5

sistance, dimensional stability, higher fusing point, curable embossing, and a soft hand needed to be produced in an all-acetate fabric. Melamine and urea-formaldehyde resin finishes produced very harsh hand, craze marks, stiffness, low tear strength, and undesirable modifications. To systematically produce analogous potential acetate fiber reactants having different diffusibility and solubility in acetate, three products were prepared having increased solubility in alcohols and acetone:



All contained the same base structure with different functional groups capable of crosslinking cellulose acetate. Equal mole concentrations were applied to an acetate taffeta using the same acid catalyst, 0.1% oxalic acid. A portion of each impregnated and dried fabric was given a deep embossing pattern prior to curing. The results obtained from these finishes are shown in Table II.

It is seen that as we went from methylols to methyl ethers to acetyl groups in the crosslinking agent, more desirable fabric properties were produced, presumably because of increasing internal modification of the acetate fibers, brought about from the increased diffusibility of the finish into the fibers.

Of the commercially available thermosetting resins and reactants, those based on alkoxymethyl groups and low molecular weight are the most suitable for acetate finishing. Unfortunately, none of these have been specifically developed for acetate. The finishing of rayon-acetate blends is still being done primarily with low cost methylol urea resins. When the acetate content is high, however, low mechanical properties, dulling, mark-off, and harsh hand are produced. In recent years some improvement has been made by using blends of methylol urea resins and alkylated urea formaldehyde products. With the better of the latter products the following substitutions can be made and are being used on rayon-acetate suiting-weight fabrics.

All UF Mix
33% UF paste
5% UF syrup
1% Softener
1.5% Amine salt catalyst

Modified Mix
25% UF paste
5% Alkylated resin
1% Softener
1.5% Amine salt catalyst

On most fabrics, the second finish produces better shrinkage control, less dulling, a more resilient hand, and better tear, abrasion, and sewing properties.

Polyethylene Emulsions. A striking example of one of the mechanisms for depositing finishes on man-made fibers which does not involve any reactivity with the fibers or with itself is that of polyethylene. Although no chemical reactivity is involved, polyethylene can produce profound changes in the fabric properties at very low concentrations, and these changes are durable to washing and dry cleaning. This is demonstrated below on several fabrics.

Here a 20% solids nonionic emulsion was prepared with a low molecular weight and carboxyl-containing polyethylene. This emulsion, on baking on glass or on a fabric, is broken and a polyethylene film is produced which is not re-emulsified or solubilized by washing or dry cleaning solvents. The changes in fabric properties produced are shown in Table III.

Polyethylene emulsions are finding increasing uses with all ther-

TABLE III

Fabric Used	Polyethylene Deposited, %	Tear Strength Warp	Stoll Flex Abrasion Warp
Orlon-cotton	None	2.1	350
Orlon-cotton	0.18	4.7	1560
Dacron-cotton	None	3.5	760
Dacron-cotton	0.20	5.9	2150
Filament rayon	None	10.2	350
Filament rayon	0.24	19.4	2600
Acetate	None	7.3	620
Acetate	0.22	12.1	1950

mosetting resin finishes for improving tear and flex abrasion resistance. Besides these properties, it has been found that all fabrics treated with polyethylene produce high seam strength and greatly reduce needle cutting. This has become exceedingly important in rayon-acetate resin-finished fabrics.

Polyethylene emulsions, properly formulated, are also becoming useful as straight finishes for Acrilan, Orlon, Dacron, nylon, Vicara, and blends of these with other fibers. Here, the polyethylene gives a full velvety finish which is durable and is not yellowed by heat or light.

Another increasing use of polyethylene is in permanent sizing of some of the hydrophobic fibers.

Possibilities exist for using polyethylene as a finish for nylon hosiery to reduce snagging and give better texture either alone or in conjunction with polyvinyl acetate emulsions. Some use of this is already in progress.

Nylon Finishes. A specific example of partial chemical reactivity with the fiber polymer is the case of nylon. Here a difunctional epoxy agent has possibilities of reacting with the terminal amino or carboxyl groups. The latter reaction was originally suggested by Speakman (7) for modifying protein fibers. This reaction on nylon offers interesting possibilities for finishing effects.

A similar fiber reaction has been made use of by Nuessle (8) to produce a permanent stiff finish on nylon with polyacrylic acids. Here there is evidence of both amide and anhydride formation with the amino or the carboxyl groups on the nylon. By modifying this procedure so as to apply mixtures of a polyol (e.g., glycerol) and polyacrylic acid, a similar stiff finish is produced, whose durability is now brought about by the formation of a three-dimensional cross-linked alkyd type resin on the nylon fibers. This is a commercial process for nylon finishing.

The deposition of an insoluble chemical on a smooth hydrophobic fiber does not necessarily produce a good finish. Here problems of specific adhesion to the polymer surface come into play. This is well illustrated in the finishing of nylon with thermosetting resins. For example, a methylol based urea syrup polymer which has been widely used on rayon and natural fibers with good effects can be cured on nylon. The stiff finish produced, however, cracks, dusts, and easily marks-off. By introducing carboxyl groups in similar resins, the adhesion of the cured film to nylon is improved.

Again, a further improvement can be made by forming an alkylated urea-formaldehyde syrup resin. This and analogous products from melamine are excellent, durable finishing agents used on nylon shoe cloth, marquisettes, laces, and nets.

In very open fabric structures, it has been found that the alkylated resin finishes make the nylon flammable. By introducing thiourea or a thiourea formaldehyde resin into the normal finishing mix, then the original flame resistance of nylon is restored. The use of sulfur-containing products for this purpose on nylon has been described (9).

Germicidal Finishes. In recent years, there has been increasing activity on developing finishes for all textiles to render fabrics bacteriostatic or bacteriocidal and reduce bacterial odor formation. Finishes of this kind are now on the market. They cover a whole range of durabilities and chemical types.

Quaternary ammonium germicides have been long used for this purpose (10) but these lack durability to repeated washing. Metallo-organic compounds such as tributyl tin oxide, acetate, laurate, etc., and mercuric and silver salts show improved durability when physically bonded to textiles with emulsion polymers. The organometallic germicides show high effectiveness at very low concentration on the cloth, but there is yet much to be learned about this whole field.

Water- and Oil-Repellent Finishes. In the field of water repellency and spot and stain resistance on man-made fibers, again both fiber reactions and formation of an insoluble polymer on the fiber surfaces are the mechanisms employed to obtain durability. For the hydrophilic fibers, quaternary ammonium compounds, stearamide resinous products, polyester resinous products, chromic chloride complexes, and silicones are used. For the hydrophobic fibers silicones have become more prominent.

With the availability of more active zinc, tin, and zirconium based catalysts and with better formulated products and application techniques it is now possible to use extremely low add-on of silicones (about 0.5%) and obtain excellent water repellency compared to the much higher amounts recommended earlier.

While all water repellents produce spot and stain resistance against water-borne stains, only a few products yield resistance or repellency with oily materials. The latter products have only recently been introduced and are characterized by having perfluoroalkyl groups (11, 12, 13). Although presently very expensive, such types of products have promise of becoming important finishing agents.

Antistatic Finishes. The problem of the static propensities of some man-made fibers has received wide attention from the point of view of both the textile processor and the consumer. Here it has long been recognized that increasing the hydrophilic nature of the fiber surface or the deposition of ionizable compounds on the fibers leads to improved conductivity and reduced static formation. For nondurable finishes, glycols, polyols, lactates, hydroxyethyl lactamides, and polyethylene oxide polymers are generally effective on most hydrophobic textiles. Quaternary ammonium compounds are also nondurable but are very effective antistatic agents on select fibers.

Since there is some amount of specific information on the mechanism of reducing static (some of this has come from the plastics field), the remaining problem is to produce durability with accompanying requirements of no yellowing; no destruction by soaps,

detergents, alkalis, sun, heat, or abrasion; low cost; and ease of application.

Promising results in individual cases are found by applying thermosetting resins containing quaternary ammonium groups, sodium sulfonate groups, carboxylate groups, and other ionizable groups. Pre-formed insoluble ion-exchange resins offer some promise if the weight efficiency and adhesion to the fibers can be improved.

Thermosetting cationic resins in general give antistatic effects, but suffer in heat and light stability and give fabrics which show high soil retention on washing with soaps. Two major products on the market are claimed to be permanent. Their composition has not yet been disclosed (14, 15).

SPECIFIC DEVELOPMENTS FOR MAN-MADE FIBERS

To a very great extent, the finishing of fabrics made from man-made fibers has been based on trying to utilize products and processes which had been earlier developed for the natural fibers. This is shown by the few examples which were commented on above.

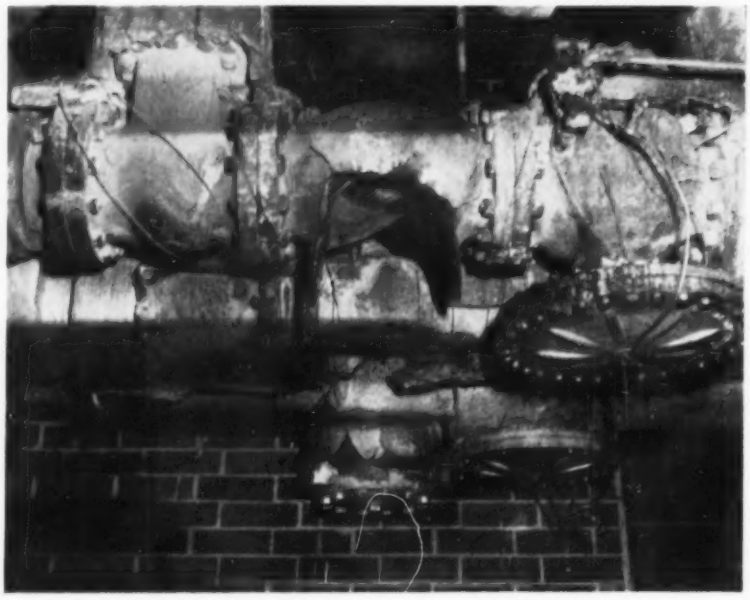
While a larger number of other examples of antistatic agents, anti-soiling treatments, delustering agents, resins of all types, flameproofing chemicals, etc., could be cited, the important point we wish to make is that basic textile properties of the man-made fibers can be greatly improved by designing specific agents for specific effects on each fiber.

In many cases we still do not know what chemical products we need to change selected textile properties. In a few cases, important developments have been

When this 8" strainer on a textile mill steam line ruptured

2 men died

Engineers believe water hammer caused it



■ The danger of inadequate drainage as a cause of misoperation of valves on steam piping was recently demonstrated by a textile mill accident that was fatal for two of the employees.

Details of the accident, which is believed to have been caused by water hammer, are contained in the following extract of an article which appeared in the June, 1957, issue of *The Condenser*, a publication of Mutual Boiler and Machinery Insurance Co.

An 8-in. cast iron strainer in the mill, forming part of a duplex reducing station, on a 200 psi steam line ruptured as shown in the accompanying illustration. This strainer was manufactured for 250 psi service and had been in use for approximately seven years. It was connected into the steam line from the boiler.

A 14-in. line ran from the boilers to the reducing station, a distance of approximately 1200 ft. There were seven expansion loops in this line which had a pitch of about 1 in. per 100 ft.

The three drip legs, spaced about 225 to 250 ft apart, were connected to ¾-in. traps. In addition there was a ¾-in. trap inside the brick wall where the line dropped vertically to the reducing station. After the accident two of these traps were found to be 50 to 75 per cent obstructed and the other two were completely plugged with deposits.

Prior to the accident the line had been out of service for plant repairs which included the installation of new diaphragms in the pressure reducing valves. While returning the line to service after a week-end shutdown and cutting in the reducing station, one of the cast iron strainers ruptured, fatally injuring two employees. The

accomplished by using basic scientific principles. This is well illustrated in the development of silanic materials for finishing fiber glass (16) so that the treated fabrics now will have functional groups to give adhesion or reactivity to polyester, phenolic, amino-resin, and epoxy coating plastics, as desired.

For many desirable effects on both natural and synthetic fibers, there are still important principles which have to be worked out to give basis for developing finishing agents. A striking example is the great lack of information about the specific adhesion of polymers, resins, and chemicals to individual man-made fibers. Another example is the incomplete knowledge as to what causes the heat and light deterioration of fibrous materials, so that finishing treatments could be devised to overcome these defects.

Although new man-made fibers will continue to appear on the market and will each have new and unique properties, there will always be a need for using a finishing treatment to produce a satisfactory textile material for most end-uses.

References

1. Gagliardi, D. D., and Gruntfest, I. J., *Textile Research J.* 20, 180 (1950)
2. Gagliardi, D. D., and Nuessle, A. C., *Am. Dyestuff Reptr.* 39, 12 (1950)
3. Cooke, T. F. et al, *Textile Research J.* 24, 1015 (1954)
4. Wilson, A. W., U. S. Patent 2,517,750 (1950)
5. Schroeder, C. W., and Condo, F. E., *Textile Research J.* 27, 135 (1957); TEXTILE INDUSTRIES 121, 163 (Feb. 1957)
6. Quaker Chemical Co., U. S. Patents 2,785,947; 2,785,948; 2,785,949; 2,785,995; 2,785,996; 2,786,081
7. Speakman, J. B., *J Textile Inst.* 32, T83 (1941); *J. Royal Soc. Arts* 93, 603 (1945)
8. Nuessle, A. C., U. S. Patent 2,692,182
9. Hasselstrom, T., et al, *Textile Research J.* 22, 742 (1952)
10. Rohm & Haas Co., bulletin, "Hyamine 1622 and 10X" (1952)
11. Reid, T. S., et al, U. S. Patents 2,642,416 and 2,662,835
12. Reid, T. S., et al, British Patent 712,784
13. Philips, F. J., et al, *Textile Research J.* 27, 369 (1957)
14. Union Carbide's Antistatic AG-2
15. Onyx Oil and Chemical Co.'s Antistatic Aston
16. "Silane Finishes," *Ind. Eng. Chem.*, 90 (Feb. 25, 1957)

pressure on the main 14-in. steam line at the time was approximately 185 psi.

Since the traps were not functioning to full capacity and since there were no free blow drains connected to bottoms of the strainers, engineers concluded that a slug of water probably was carried along with the steam which partially or totally restricted the flow at the strainer, creating a shock wave or water hammer.

In addition to the rupture of one strainer, the top cover plate of one reducing valve fractured and the bottom plate of the other reducing valve was broken. The wooden partition enclosing the reducing station was bulged outward by the explosion. Two brick walls were also damaged by bulging and cracking and a hole was opened up in one wall.

The property damage and indirect loss amounted to over $30,000. Part of the damage was caused by the opening of 50 sprinkler heads following the explosion and wetting down over 2,175,000 yards of cloth.

Mutual Boiler's investigation revealed no structural weakness or defective material in the construction of the strainers and other parts of the reducing station.

The effect of water hammer is one of the most perplexing problems which the plant engineer has to combat. Water hammer is manifest as a series of shocks sounding like hammer blows, although, in some instances, the shock wave may not be accompanied by sounds and may have sufficient magnitude to rupture the pipe or fittings.

It may be caused by the nearly instantaneous or too rapid closing of a valve in a line or by an equivalent stoppage of flow, such as a slug of water or condensate momentarily closing an opening or restricting flow through the opening.

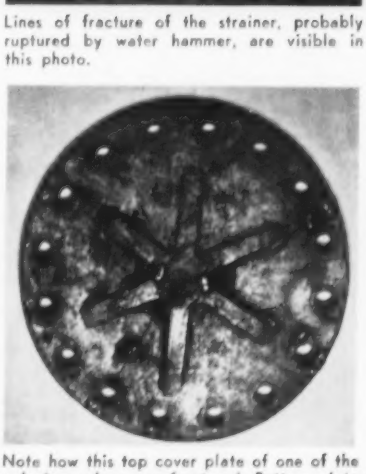
Complete stoppage of flow is not necessary to produce water hammer, as any sudden change in velocity will create it to a greater or lesser degree, depending on the operating conditions at the time. Hence, with flow velocities of 25 to 50 ft per second, it is possible, under ideal conditions, to set up shock pressures of 1500 to 3000 psi with correspondingly large energy blows or impact, which tend to tear the pipe or fittings apart.

The accident described above might not have occurred, if the lines had been properly drained and precautions taken to warm up the lines to remove all condensate.

Steam pipe accidents do not usually result in much damage to the piping itself. The greatest hazard is possible personal injuries and loss of life and the extensive damage that may follow the breakage of the piping. The escaping steam often wets down valuable goods in storage or process.

(Recommendations for action to lessen the possibility of steam line failures will appear in the October issue.—The Editors)

Lines of fracture of the strainer, probably ruptured by water hammer, are visible in this photo.



Note how this top cover plate of one of the reducing valves was fractured. Bottom plate of another valve was broken.

Running synthetics

(from page 128)

of starch used on synthetics are sending the fibers through the slashing and weave rooms with equal ease. Still others use gums only.

One of the plants breaks down the size formula used into two categories, depending on the yarn size. Whereas for all cotton counts a formula using 115 lb of starch and 12 lb wax is employed, only 40 lb of starch and 2 ½ lb of the same wax are used for yarn counts (synthetic blends) up to and including 14s. For 15s and finer, 2 lb of Glytex are added to the latter formula.

Product Cleanliness. Each plant has its own system of keeping the stock and the working areas segregated. Some have adopted the use of screens to seal off whole departments, with further screening being done within the departments. The screens used may be temporary or permanent in nature.

Those plants not using screens have adopted cleaning techniques or other safeguards to prevent contamination. The problem seems to be strictly a local one and is met as such.

WORSTED SYSTEM

Blending on the worsted system may mean that the staples are passed through the entire range of worsted processes, or it may mean that the blending begins at some process within the system. For instance, one plant reports that Orlon staple of 2½" to 3" in length is carded either on a cotton card or roller top card into a 55-grain sliver. A standard 64s Australian wool top is also prepared in a 55-grain sliver.

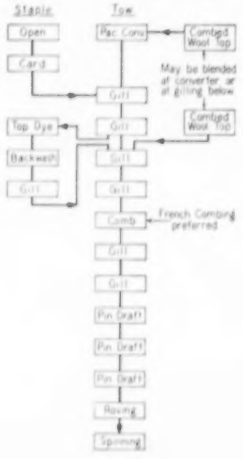
The two slivers are blended on Pin Drafters by creeling in eight cans of Orlon and two cans of the wool sliver. The resulting 80-20 Orlon-wool blend is passed twice more through the Pin Drafters. The 50-grain sliver from the third Pin Drafter is reduced on one operation to 2.40 hank roving on double-apron speeders. This roving is spun into counts such as 1/28s to 1/34s on modified spinning frames.

While carding two fibers simultaneously on worsted cards is sometimes done, most of the blending seems to take place, as above, at some process following carding. Intimate blends can be accomplished by introducing both fibers in the gilling prior to combing. Combing is not always necessary, however.

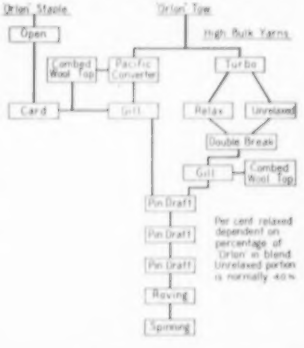
The Pacific Converter is useful in reducing the number of processes formerly used in the worsted systems. It processes tow into staple without losing the parallel arrangement the filaments assume in the uncut state. Futhermore, the machine can be equipped with a blending attachment which enables wool top to be introduced into the synthetic staple without further reducing the average length of the wool fibers. In this case the top is not fed into the cutters.

The latter advantage is an important one. Since wool top already contains a number of short fibers, it is most important to good running that the fiber array remain with the longest average fiber length possible. However, if there remain some wool fibers too long for the spinning, the ratch of the Converter can be set to break

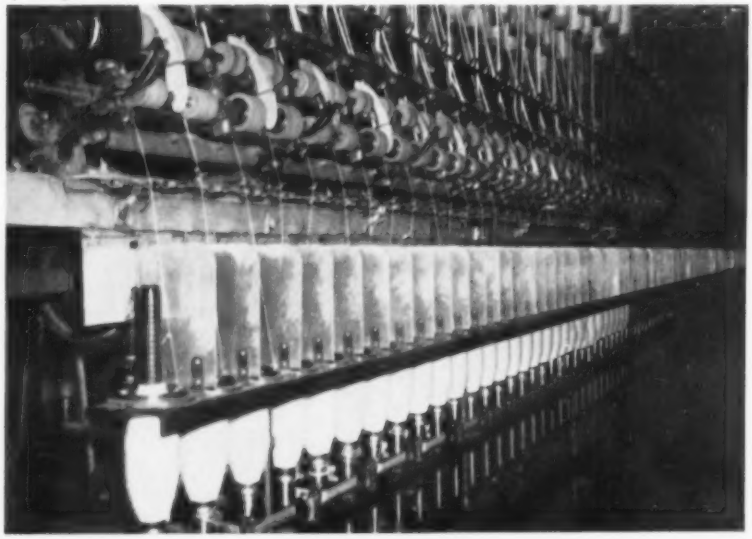
Suggested Process Flow Sheet for Blending Dacron and Wool Modified Worsted System



Suggested Process Flow Sheet for Blending Orlon and Wool Modified Worsted System



The sliver from the Pin Drafter is processed through fly frames into roving for the worsted spinning frame.



these long fibers without materially upsetting the arbitrary staple length. A blend of 50% wool is about as high as the Converter is recommended to process.

The wool and synthetics are mentioned only as examples. The machines actually are versatile enough to process a great variety of fibers in tow or top form. The sliver from these machines contains shuffled and parallel fibers which need no combing.

One example of blending starts with the Pacific Converter where 3-denier, 3½" Dacron staple is made and mixed 50-50 with wool top. The sliver from the Converter is passed through one gilling process, followed by three runs through Pin Drafters. There is only one process each of roving and spinning. The plant using this system is air conditioned to an even 80 F. Relative humidity ranges from 60-65%. Tints, applied at the Pin Drafters, identify both fiber content and wool grades. There is no provision made for in-process storage.

A modified worsted system produces carpet yarns for the tufting industry with the following steps: (1) blending; (2) picking; (3) carding; (4) two processes on Pin Drafters; (5) roving; (6) spinning; and (7) winding. The fiber used is 15-denier rayon, 3" staple, both natural and solution-dyed.

Blending is done on six automatic hoppers which weigh and dump the stock simultaneously onto a conveyor belt. The stock from the hoppers is conveyed by belt to a Superior cleaner. From this machine the stock is dumped into a blender which is synchronized with the delivery of fibers from the hoppers. From the blender the stock passes into a second Superior cleaner. It then passes into a reserve hopper from which it is dumped onto a belt conveyor carrying the stock under a spray unit which applies an anti-static compound to the fibers.

From the spray unit the stock is passed through a picker section equipped with a Kirschner beater. Once delivered from the beater the stock is dropped into a bale press for compressing into 500-lb packages. The bales are stored for a maximum of 72 hours to allow the

The Pacific Converter, here shown with its blending attachment (an optional feature), will prepare staple from tow and simultaneously blend the staple with other fiber such as wool. The combing process is sometimes eliminated through the use of the Converter. In the lower photograph is a Noble comb, long a familiar machine in worsted system.

moisture to even out.

After the curing period the bales are opened on the card room floor and fed into worsted cards equipped with feed boxes. From these 54" cards twin slivers are taken, each weighing 175 grains per yard. The cans containing the sliver are placed in the creels of breaker Pin Drafters which draft approximately eight. The second such process drafts about six and completes the drawing cycle. One process each of roving and spinning follows.

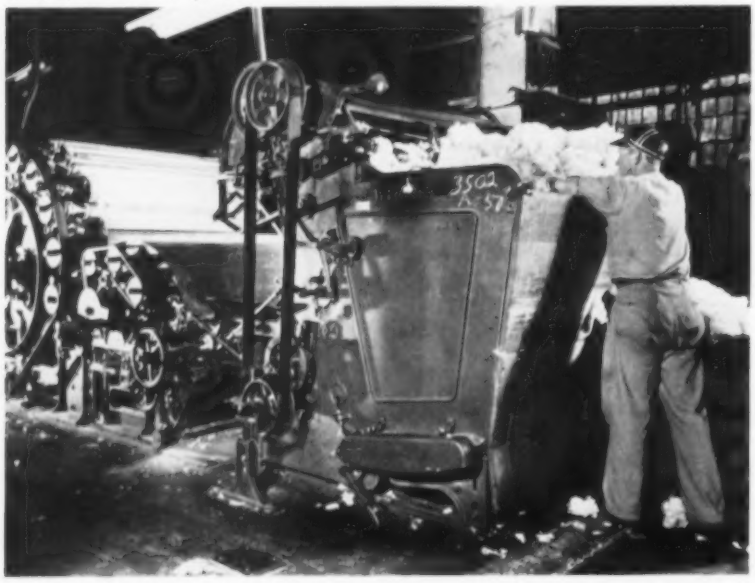
WOOLEN SYSTEM

The woolen system, with its absence of drawing and doublings, restricts the blending methods to carding or precarding. There are several types of opening and blending equipment available, probably the most widely used of which is the blending or mixing picker. The sandwich blend is recommended for mixing wool with synthetics.

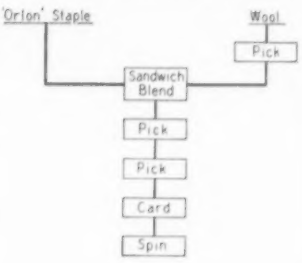
In blends demanding low proportions of one fiber, it may be necessary to blend the fibers present in the least quantity with a portion of the remainder of the mix. Once blended in quantities which will permit more even distribution, the first blending may be mixed with the balance of the stock. Otherwise it is difficult to blend adequately nine or more parts of one fiber with one part (or less) of another fiber.

There are problems incidental to blending colored stock which bear special attention. With the tendency of the long fibers to migrate toward the center of the yarn, the shorter fibers will dominate the yarn color. This condition can be minimized by dyeing a portion of both the short and long fibers in those mixes involving natural and dyed stock.

The absence of blending opportunities in the woolen system restricts blending to carding or precarding operations. The favorite method of stock blending starts with the sandwich blend (upper photo). Layers of the stock are placed on the floor, one layer upon another, with each layer representing a portion of the blend. Armfuls are plucked from the end of the sandwich to assure an equal area of each layer being represented. A mixing picker may be used as the next step. To further control the blend, the wool card is equipped with a feeder hopper which intermittently admits weighed quantities or the stock to the card, as in the lower picture.



Suggested Process Flow Sheet for Blending Orlon and Wool on the Woolen System



The sandwich may be prepared and picked several times before carding, as is the case in a plant which produces printer's laps. This firm picks the blend three times, and adds the wool oil to the stock during the last picking. The nylon and wool fibers used are opened separately.

(This article, restricted to information related by the mill men interviewed, and to information gathered from other qualified sources, makes no attempt to evaluate either the machinery or the processes reported. Reference to equipment or processes, or lack of such reference, does not constitute either editorial endorsement or indictment.—The Editors.)

Tear along this line to post in card room

PIECE YOUR LAPS EVENLY!

Lumps like this can ruin card screens

Tear along this line to post in card room

PIECE YOUR LAPS EVENLY!

Lumps like this can ruin card screens

Textile Industries
5

Textile Industries POSTER SERVICE

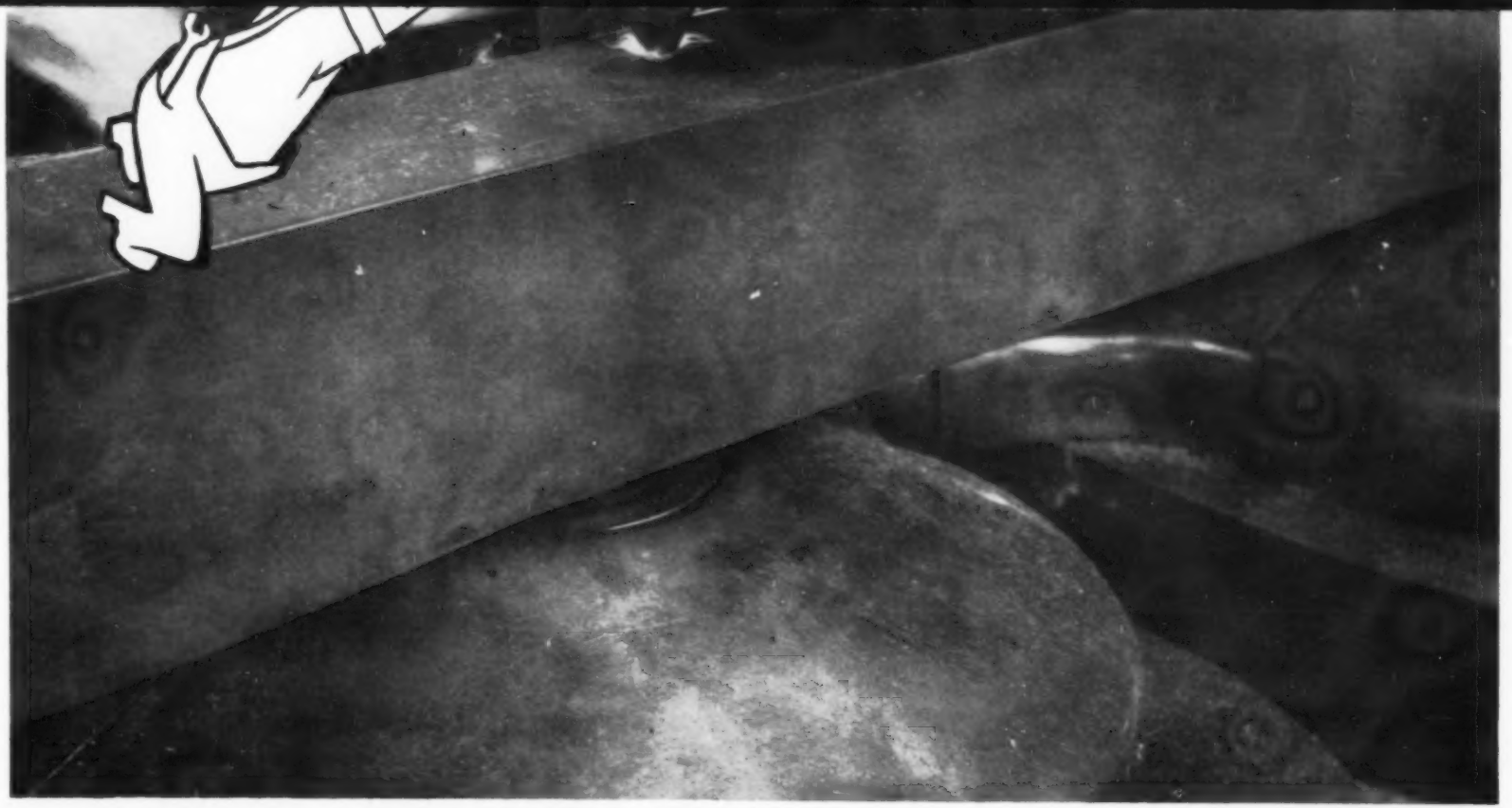
This is one of a series of manufacturing hints and employee reminders in poster form, designed for placing on mill bulletin boards. Reprints are available. Write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

Pounding damages drawing trumpets.
PULL THOSE CHOKES OUT!

Textile Industries POSTER SERVICE

This is one of a series of manufacturing hints and employee reminders in poster form, designed for placing on mill bulletin boards. Reprints are available. Write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

Tear along this line to post in card room



Textile Industries POSTER SERVICE

This is one of a series of manufacturing hints and employee reminders in poster form, designed for placing on mill bulletin boards. Reprints are available. Write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

Tear along this line to post in card room

W. E. Reid, president of Riegel Textile Corp.

5 KINDS OF COMPETITION FACING US

Riegel's president suggested ways for meeting them to North and South Carolina textile operating executives

Staff report

THE textile manufacturing industry is today confronted with competition from five different angles, declared W. E. Reid, president of Riegel Textile Corporation, in his address during the recent annual convention of the Southern Textile Association which was held at the Ocean Forest Hotel in Myrtle Beach, S. C.

Operating executives from mills in North and South Carolina and Virginia were warned of:

1. Competition from within the industry.
2. Competitive products from other industries.
3. Competition from foreign sources.
4. Competition from other industries for our operatives.
5. Competition from other industries for our management personnel.

Mr. Reid's suggestions for meeting these problems are contained in the following abstract of his remarks:

While members of the textile industry are scrapping among themselves, other industries are beating us to the customers through a good job of market and technical research. The paper and plastics industries are expanding rapidly into former textile markets, and additional capacity in these competitive industries must be anticipated in the future.

Our cotton pricing policy of holding an umbrella over foreign-grown cotton is strangling the use of American cotton. Over the last five years, our population has increased 9 per cent, disposable income has increased 28 per cent, and cotton consumption has decreased 11 per cent. No industry or farm commodity can survive if it is priced out of the market. Continuous vigilance, work, and cooperation are needed to hold the imports in check.

The textile industry is largely located in the South where there is no excess of available employees. Other industries have recognized the efficiency, attitude, and character of southern people and are competing to obtain their services. The textile industry must continue to keep pace with competing industries in terms of wages, working conditions, opportunities, and stability of employment.

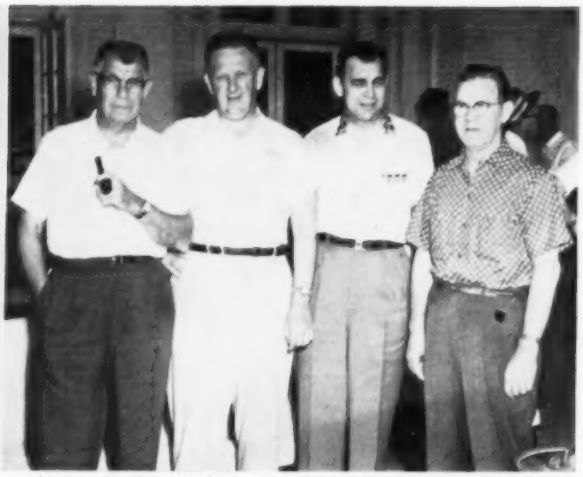
Competition from other industries for management personnel is in strong evidence. The most critical period in the life of a corporation is when it is passing from the founder management into successor management. Many of our southern textile corporations are at this point.

The only answer to this problem lies in the feeding in at the bottom of good, well selected young men of management caliber. Industry has recognized that you cannot improve by training what you fail to do by selection.

The point has been reached where we must be willing to give

New officers of S.T.A. are (left to right): Horace Pennington, Cone Mills Corp., Greensboro, N. C., president; Walter Vincent, Dan River Mills, Danville, Va., first vice-president; Joe Jenkins, Pelzer Mills, Pelzer, S. C., second vice-president; W. M. Pittendreigh, Riegel Textile Corp., Ware Shoals, S. C., chairman of the board.

Among those attending were (left to right): C. H. Garren, Staley Mfg. Co., Clemson, S. C.; Harold King, Orr Mills, Anderson, S. C.; W. H. Esslinger, M. Lowenstein & Sons, Anderson, S. C.; B. E. Sides, P. H. Hanes Knitting Co., Winston-Salem, N. C.



Also on hand were (left to right): Ed Rogers, Barber-Colman, Greenville, S. C.; R. H. Pharr, Penick and Ford, Richmond, Va.; J. C. Ballard, Barber-Colman, Greenville, S. C.; Troy Carter, Woodside Mills, Greenville, S. C.

More mill men (left to right): Frank Sherrill, Joanna Cotton Mills, Joanna, S. C.; Dave Roberts, Lydia Mills, Clinton, S. C.; J. B. Templeton, Clinton-Lydia Cotton Mills, Clinton, S. C.; George Huguley, Clinton Cotton Mills, Clinton, S. C.; Pat Hughes, Drayton Mills, Spartanburg, S. C.

leadership and to follow leadership in a more cooperative effort to expand our over-all markets. We must be interested in the welfare of competitive mills because a sick member of the industry unfortunately reacts against all of us. If we do a better job of service, style, and maintenance of high quality standards, regardless of the cost pressure brought upon us, we will go a long way toward maintaining and improving our competitive position.

We must create in all textile products the style fatality rate that has been established in ladies' dresses. By creating demand with style change, we can be well on our way down the road of increased consumption.

We should get the support of our people in the election of intelligent leaders in greater numbers for our congress. We need realists, not theorists, in government. We can support our state and national textile associations in their leadership of our cause. The real answer to this question of competition abroad lies in our seeing that our government is brought to its senses.

Competition from other industries for employees must be dealt with by giving dignity to our own employees, giving them the full right to be treated as a unique individual with legitimate and worthy ambitions and aspirations. We must handle complaints and grievances promptly and fairly so as to reflect well on the company as well as the industry. Welcome ideas, and give credit to employees.

In short, we must meet the competition from other industries for employees by establishing and maintaining sound personnel policies and then seeing that they are equitably administered by competent supervision.

Competition for management is felt from industries throughout the country. The complexities of business today call for good, capable management. In order to secure this it is necessary to look at every source available, including colleges, high schools, and employees.

Congressman William Jennings Bryan Dorn of South Carolina told the group that our first line of defense is a sound economy. We should tell our duly elected government representatives how we feel about current issues and give them continuing support in their endeavors.

At the Saturday morning business session, Robert C. Jackson, executive vice-president of the American Cotton Manufacturers Institute, Inc., spoke about Washington and the textile industry

with regard to tax policy, cotton policy, and trade policy.

He said depreciation schedules are geared to practices and machine life expectancy of 25-50 years ago. Management cannot replace facilities with higher costs of machines. The House Ways and Means Committee is studying schedules with a view to advantageous revisions, Mr. Jackson stated.

The Department of Agriculture keeps records on the basic cotton goods, and for the past several years cotton has amounted to 55 per cent of the cost of important fabrics. Antiquated cotton policy has been operating to cause collapse of cotton structure. Cotton has not figured in the increase in fiber consumption, and cotton groups in this country are waking up to the fact that something must be done about price as a competitive factor.

Hearings have been announced on cotton pricing policies, but the odds are against action during this session of congress. The industry should urge action on this subject, Mr. Jackson said.

On trade policy, imports of Japanese goods are now below the quota, but the problem is not solved and will be with us so long as foreign wages remain low and cotton is sold abroad by our government at low prices. There is no legislation in the works to improve the situation at the moment, Mr. Jackson reported, although active studies are underway for improving the language in legislation for the future.

The profits and economic picture shows peaks and valleys in economic character seemingly unrelated to other industries, he said. Management must seek to prevent economic fires and to stabilize the industry. Not in a single quarter in several years have profits averaged those of industry as a whole. Profits have amounted to 47 per cent of the industry average. The wholesale price index rose 25 per cent while textiles dropped 4 per cent in the last several years. Textiles are not securing an appropriate share of the consumer dollar, and the textile industry is not bringing the return it must bring to stay competitive with other industries.

The future of cotton is being determined by policies now in operation and being formulated. The job to be done is collective for the whole industry, according to the ACMI official. The best management cannot escape from market conditions.

A dark picture is outlined with genuine faith that something will be done about it by top management, and something can and will be done because factors are in the industry's favor, Mr. Jackson stated. Today we have the most favorable balance in recent history of productive capacity and consumption.

The industry has shown that reasonable earnings may be plowed back into business, and management has the courage and know-how, if profits permit.

Creation of an economic research division has been recommended for better economic and statistical service to the industry so better criteria will be available in making decisions. An economic policy committee would give guidance regarding the types of information and ways to dispense the data, Mr. Jackson concluded.

Many textile men fail to solve their problems in the mill by having an "if it works" attitude. W. M. Pittendreigh, retiring S.T.A. president, told the session on Saturday. It is necessary that we change this "if it works" attitude to one of "What can I do to make it work?"

The next annual meeting is scheduled for June 19-21, 1958, at the Grove Park Inn, Asheville, N. C.

Let mills depreciate capital equipment in 15 years, ACMI urges

■ The American Cotton Manufacturers Institute, appealing for a "revitalization" of the textile industry, has joined in an effort to obtain a shorter period in which to write off the depreciation of capital equipment.

Andrew J. Cothran, secretary of the Graniteville Company, Graniteville, S. C., and chairman of the trade association's tax committee, said that the textile industry recommended to the Internal Revenue Service that 15 years instead of 25 should be set as the useful life of textile machinery.

In so doing, the textile manufacturers joined other industries in urging a change in depreciation requirements. Said Mr. Cothran:

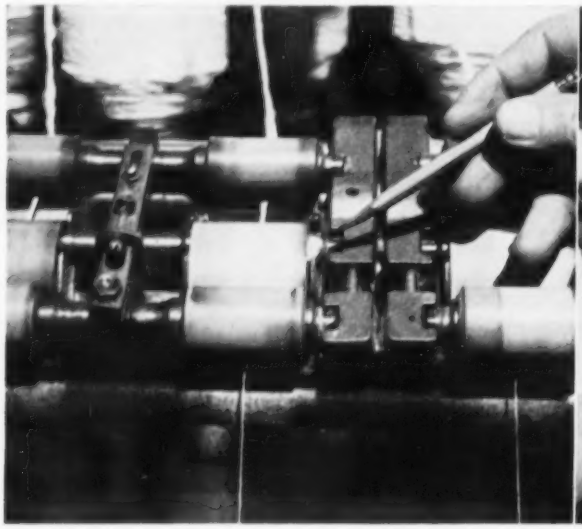
"If the industry's plea for a realistic depreciation rate is granted, a new outlook will be achieved for the textile mills. It will enable the industry to re-equip with modern machinery so it can meet global competition, increase fiber consumption, and maintain a high level of employment. In other words, it will mean a revitalization of the industry."

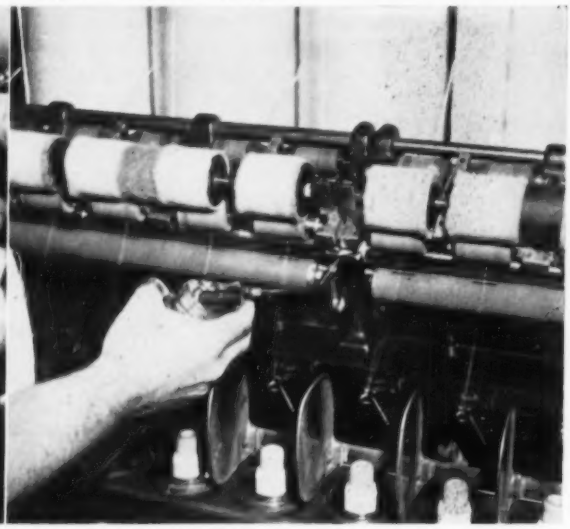
The tax agency sought the industry's attitude in connection with a proposed revision of its Bulletin F, a handbook reflecting the useful lives of depreciable property. The bulletin serves as a guide for taxpayers in making out tax returns. The textile industry's recommendations are based on substantiating data provided by the American Textile Machinery Association, Mr. Cothran said.

Mr. Cothran advised the government agency that studies of textile mill manufacturing departments indicate the industry is now in a period of accelerating obsolescence of existing machines because of advances made through the research and development programs of American machine builders.

One of several exhibits prepared by American textile machinery builders for submission to the tax agency showed that the textile industry has been using its equipment generally at the rate of 6,000 hours a year instead of the 2,000-hour operation in existence when the present table of depreciation rates was established in 1937.

The use of high quality lubricants will insure maximum benefits, particularly on critical textile machinery applications such as the top and bottom rolls of spinning frames. When of the plain bearing type like the rolls utilized in the long draft systems pictured here, anti-wear properties in the lubricant are required; also, it is desirable that such products do not creep or drip onto the material in process. Semi-fluid lubricants are often used to obtain these. Turn to the chart on page 173 for a summary of important lubricant characteristics required by textile equipment. Use it when analyzing your present lubrication program.





Lubrication is management's

by L. E. Endsley, Jr.
Research and Technical Dept.
The Texas Co.
New York, N. Y.

Exclusive

*Part 2**

Textile Lubricants. A good lubrication program depends upon the availability and selection of suitable lubricants designed to do the specific job for which they are intended. These lubricants must have the characteristics required to meet the needs of textile machinery, such as those shown on page 173.

Due to the specialized requirements of textile machinery it is not possible to provide a universal lubricant to meet all requirements. For example, some machinery parts, like textile spindles, require relatively low viscosity lubricants to give low power consumption and to lubricate in small clearance spaces. Other machinery parts, such as gears, may require high viscosity lubricants with special adhesive and load carrying ability (extreme pressure properties).

The general types of textile lubricants are described below.

1. Spindle Oils are normally made of high-grade base stocks and may be fortified with additives. Such oils are required in various viscosities as determined by the needs of the particular spindles.

2. General Purpose Oils of a range of viscosities are used for a variety of textile machinery and may have special characteristics to protect against rusting, minimize wear, and be readily scourable from material. In certain cases, lubricants are designed to furnish special break-in characteristics. Also in many cases products are of turbine oil quality with respect to rust and oxidation resistance.

3. Stainless Type Clear Needle Oils are designed for all types of knitting machinery, particularly needles.

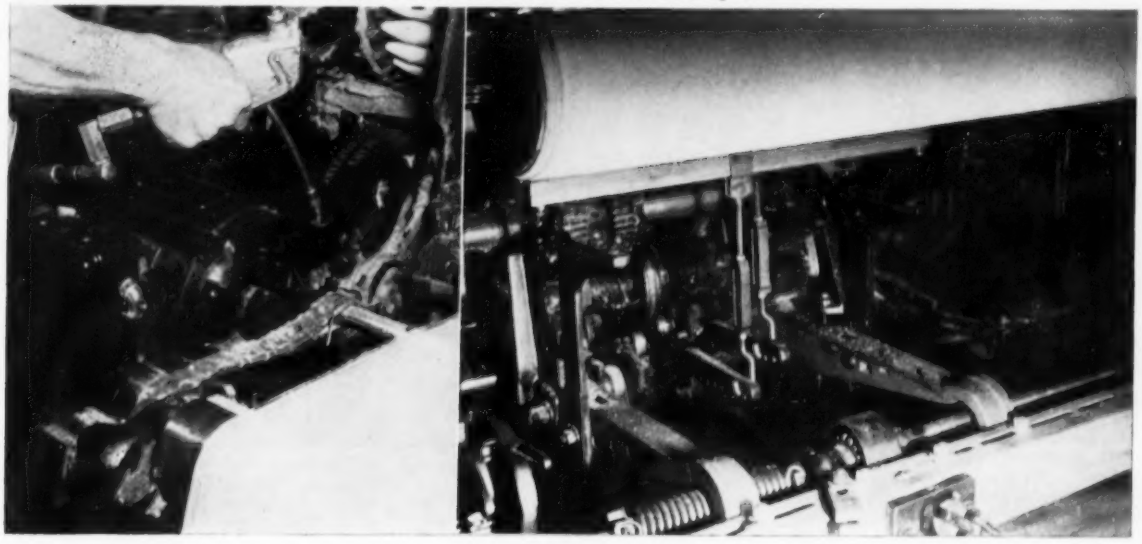
4. Semi-Fluid Lubricants are designed to minimize drippage and lubricant creeping when close proximity to yarn or fabric is present. Lubricants of this type are normally designed to minimize product staining and to be readily washable.

5. A variety of Greases is used on textile machinery to meet the needs of high speed ball bearings, high temperature operations, and special requirements such as looms. Multi-purpose greases also have been developed to meet a variety of needs and to make it possible to reduce the number of products to be stored and applied. In some cases solid type grease lubricants are applied in block form on plain bearings such as on finishing equipment. Greases to lubricate twister rings are special products designed for use with various types of travelers such as brass, steel or nylon.

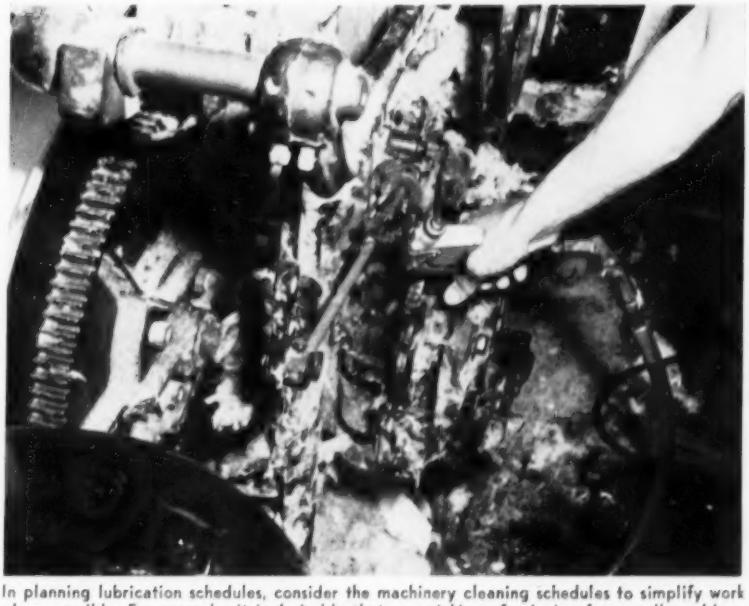
6. A wide variety of lubricants

*Part 1 was published in the August, 1957, issue, beginning on page 106. What management can expect from a good lubrication program, steps to take to insure obtaining maximum benefits from such a program, and suggestions regarding purchase of lubricant dispensing equipment were discussed.

Officials of a mill with over 3,000 looms report that an improved lubrication program in the weaving department not only increased parts life but also reduced the number of loom fires from five or six per day to one or two per month. Gears in loom power drives (left photo) are subjected to shock loading and operate best on lubricants which are adhesive and protect adequately against wear. Excessive wear in drive gears causes splashing of lubricant and staining of cloth. Harness cams (right photo) are also subject to shock loads and require lubricants having characteristics similar to those needed for loom drive gears.



business



In planning lubrication schedules, consider the machinery cleaning schedules to simplify work where possible. For example, it is desirable that any picking of spinning frame rolls or blowing down of equipment with air be done before and not after lubrication is accomplished. This is to prevent splattering of fresh lubricant which may get on and discolor fiber, yarn, or cloth in process. The loom pictured above is entirely too dirty to be lubricated.

is used to minimize wear and provide proper lubrication for gears and chains. These include straight mineral oils, universal type EP* gear lubricants, lead soap lubricants, and tacky type black gear lubricants. In some cases EP type greases are used both for their ability to minimize wear and for their adhesive characteristics.

7. A variety of processing oils contain petroleum components.

8. There are a number of miscellaneous requirements in the textile mills similar to those in other types of industrial plants, such as cylinder oils, cutting oils, compressor oils, and transformer oils.

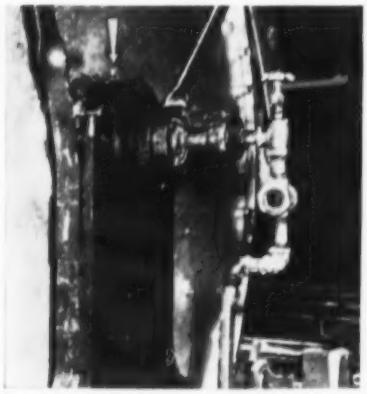
The proper selection and use of such lubricants in a particular mill is a job which deserves the closest cooperation between the machinery builders, mill personnel, and the lubricant supplier to insure maximum operating benefits from the carefully engineered lubricants which are available.

General Problems. In the textile industry, contamination can be considered the major problem from the lubrication standpoint. Not only are many lubrication points, particularly on older equipment, relatively open, but the continual lint problem makes it difficult to maintain rubbing surfaces operating on lubricant free of lint or dirt. Collected lint also acts as a wick to draw lubricant from lubricating surfaces and makes more frequent re-lubrication necessary if harmful wear is to be avoided.

In the older type machines the relatively large clearances make

*Extreme Pressure.

Major requirement for all spindle oils is that they lubricate satisfactorily without permitting excessive wear and that they also serve as a shock absorber to dampen vibration. In left photo operative is replacing old oil in spindle bases with new, using a machine designed to expedite this operation. Note that he is seated on the machine. In right photo, woolen mill employee is cleaning bolsters on spinning frame, something which should be done regularly to keep maintenance costs low.



Special high temperature greases or oils are required for bearings supporting slasher cylinders. The bearing pictured here is a grease-lubricated anti-friction type. Avoid over-lubrication. If bearing seal is ruptured, water from leaking steam and condensate return lines can get in and damage the bearing.

Tenter chains which pass through ovens require lubricants that will withstand high temperatures and not only prevent wear of the chain components but also will not drip and stain cloth.

lubrication difficult and many lubrication points are equipped only with oil holes and are not designed to retain lubricant.

On loom drives there can be considerable back lash in the gears which can be aggravated by wear. Even when a so-called stainless or colorless oil is used, dirt can get in the lubricant and any subsequent drippings will discolor cloth.

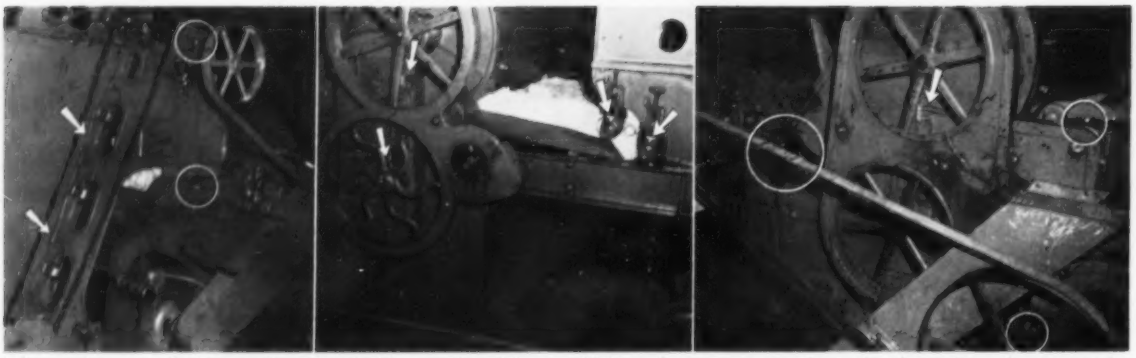
Bearing seals are not used in many locations. Even where seals are provided, as on anti-friction bearings, pressure guns, if not carefully used, can rupture such seals by forcing too much grease into the bearing. When the bearing is operated with too much grease in the housing, overheating will result.

Gears, even relatively high-speed ones, do not operate in a bath but are generally open, as in larger, slower-speed industrial types. This makes them difficult to lubricate and requires more frequent lubricant application than if gears could be in enclosed housings where the bottom gear could dip into an oil bath.

The humid atmosphere in many parts of textile mills not only encourages the formation of rust but also moisture can emulsify with oils and greases. High machinery

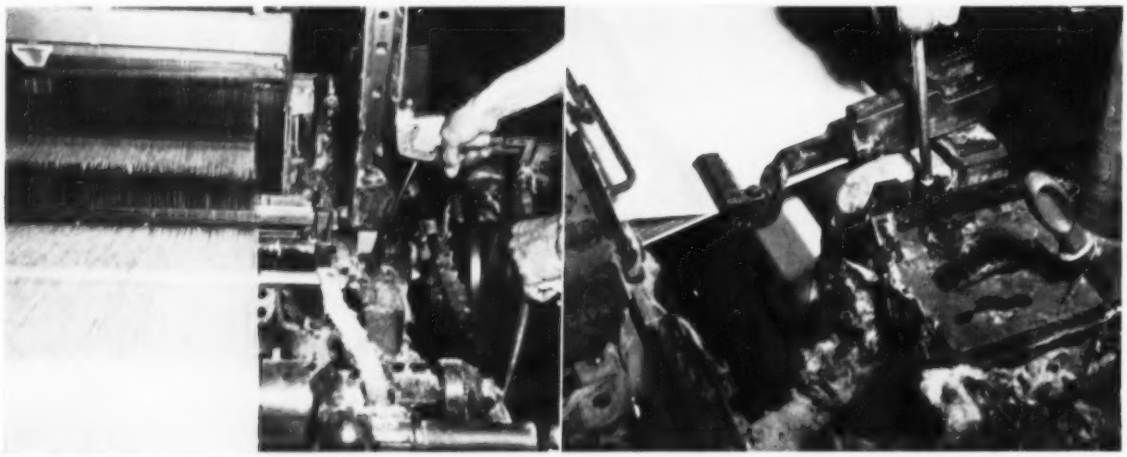
SUMMARY OF IMPORTANT LUBRICANT CHARACTERISTICS REQUIRED BY TEXTILE MILL MACHINERY

Lubricant Characteristics and Performance Factors Which Can Influence Lubricant Selection	Is This Characteristic Generally Required?	Examples of Textile Equipment Lubrication Points Which Have Special Need for Lubricants with Such Characteristics
Chemical Stability of Lubricants		
Resist oxidation	Yes	Spindle bearings, twister rings, ball and roller bearings.
Not form deposits	Yes	Comb boxes of cards, spindle bearings, ball and roller bearings.
Not thicken	Yes	Spindle bearings.
Stable in storage	Yes	Ball and roller bearings, particularly pre-lubricated type.
Stable in service	Yes	All equipment.
Resist high temperatures	No	Bearings of steam heated drums and finishing equipment.
Non-gumming	Yes	Top rolls of spinning frames.
Non-sludging	Yes	Comb boxes of cards, spindle bearings, ball and roller bearings.
Not dry out	No	All grease lubricated points.
Turbine oil quality—inhibited from rust and oxidation standpoint.	No	Needle bearings in rolls of spinning frames.
Other Lubricant Characteristics		
Be non-corrosive and be free from acid forming tendencies	Yes	Ball and roller bearings.
Detergent properties	No	Spindle bearings.
Non-foaming	No	Spindle bearings.
Non-atomizing	No	Spindle bearings.
Ability to feed through wicks	No	Some types of saddles on spinning frames.
Resistant to water	No	Lubrication points on finishing equipment exposed to water and solutions.
Anti-static properties	No	Spinning frames.
Resistant to formation of emulsions	No	Lubrication points on finishing equipment exposed to water and solutions.
Low volatility	Yes	Spindle bearings.
Non-separating	Yes	Ball and roller bearings.
Lubricant Characteristics Which Protect Machinery		
Protect against rust	Yes	Spindle bearings, weaving equipment, knitting equipment during shutdown, reciprocating plain bearings of full-fashioned hosiery machines, ball and roller bearings.
Anti-wear	Yes	Gears, pick balls and harness and pick cams of looms (particularly high speed), twister rings, saddles of spinning frames.
Load carrying ability (extreme pressure properties)	No	Loom cams, twister rings.
Highly refined lubricant	No	Spindle bearings, porous bearings of all types.
Protect bearings	Yes	Cylinder bearings of cards, ball and roller bearings.
Anti-Brinnelling — Friction oxidation	No	Some winding equipment, loom reciprocating bearings.
Protect knitting needles	No	All types of needles.
Act as seal	No	Ball and roller bearings.
Lubricant Characteristics Which Protect Material in Process		
Clear or light color	No	Spindle bearings, rolls on spinning frames, top loom lubrication points.
Non-staining	No	Spinning frames, looms, tenter frames.
Easily washable from material	No	Spinning frames, looms, tenter frames.
Non-leaking	No	Ball and roller bearings particularly on finishing equipment.
Non-dripping	No	Spinning frames, dobby heads on looms, and Jacquard looms.
Have break-in qualities	No	Saddles on spinning frames, spindle bearings, bottom draft rolls.
Low and even friction	Yes	Spindle bearings.
Odor-free	Yes	All.
Lubricant Characteristics Which Maintain High Quality of Finished Material		
Oiliness to reduce vibration flaws	Yes	Spindle bearings, top rolls and saddles of spinning frames.
Reduce stick-slip	No	Lift rods on spinning frames.
Permit even dyeing	No	All equipment where lubricant may come into contact with material.
Smooth, even, wear-free operation	Yes	All equipment.
Lubricant Characteristics Which Reduce Labor		
Adhesiveness	No	Rolls and saddles of spinning frames, all parts of looms.
Tackiness	No	Loom gears and cams, rolls and saddles of spinning frames
Ease of application	Yes	Looms — all parts, particularly pick and harness cams.
Feed from oil can readily	No	All equipment, particularly spinning frames and looms.
Stick to rubbing surfaces	Yes	Top rolls and saddles, loom pick and harness cams.
Ability to feed through central lubrication systems	No	All central lubrication systems.
Permit maximum time between re-lubrication	Yes	All equipment.
Lubricant Characteristics Which Reduce Other Costs		
Low friction	Yes	Spindle bearings.
Low lubricant consumption	Yes	All equipment.
Long lubricant life	Yes	All equipment.
Low power requirement	Yes	Spindle bearings.
Reduction of wear which reduces down-time for maintenance	Yes	All equipment.



When replacement of older machines fitted with a number of bearings which require frequent lubrication is not contemplated, lubrication can be greatly simplified by installing centralized lubricators. Savings in time, labor, and lubricants are the benefits to be derived.

Note on the one-process picker in the photos above the copper tubes which convey oil from the tank-pump unit (largest circle in right photo) to all of the plain bearings on the machine. Bearings on the other side of the picker are similarly equipped.



In some mills operatives who do loom lubrication are instructed to give a predetermined number of "shots" of grease to the plain bearings, rather than continue to force grease into them until it can be seen oozing out on shafts or other machine parts. Thus, seconds because of "oil spots" on the cloth and greasy floors under looms are minimized.

speeds, both of the rotary and reciprocating types, and high temperatures are present in many cases. Exposure to chemicals is an additional problem for both machine parts and lubricants in the finishing portion of the mills.

The number of lubrication points is so great that a labor problem is created in insuring that the proper amount, not too large or too small, is applied at a proper interval which varies for the various points. Despite such difficulty, positive and controlled lubrication is necessary to protect the machinery.

For points which are lubricated by wick feeds, the wicking material can be blocked either by the use of the wrong lubricant or if proper maintenance practices are not followed. In this connection some lubricants can separate into soap and oil phases and are not considered suitable for wick feed lubrication.

Special Lubricant Requirements. Basically, textile machinery has the following types of points which must be lubricated: plain bearings (both metal and other types such as plastic), ball and roller bearings, sleeves and channel guides, slide cams, gears, chains, spindles, rings, and travelers. These various types of lubrication points are used in a variety of different types of machinery.

In one piece of equipment, depending on the design and operation, there may be specialized requirement for a lubricant, while in another, the same type of lubrication point will not have any critical lubrication requirement whatsoever.

Differences in speed, load, temperature, materials of the rubbing surfaces, reservoir size, and adequacy of seals, can all account for such different lubrication requirements even with the same kind of mechanism.

As mentioned previously, the table on page 173 shows the types of special lubricant characteristics which are desirable in certain textile machinery lubrication points.

Spinning Frames. Saddles on the top rolls of spinning frames, when of a plain bearing type, require anti-wear properties in the lubricant, particularly when heavier

HINTS TO TEXTILE MILL LUBRICATING PERSONNEL

1. Follow written lubrication schedule strictly in oiling of individual lubrication points.
2. Wipe grease fittings clean before applying lubricant.
3. Make sure oil holes are cleaned out if necessary before applying oil.
4. Oil only after picking on spinning frames.
5. Oil only after blowing down on all types of equipment.
6. Use only correct amount of lubricant. Any excess does no good, collects lint, and drips on floor where it must be wiped up.
7. When lubricating ball bearings with seals, make certain excess grease is not supplied. Such excess can rupture seals and cause bearing to run hot through excessive churning of the lubricant.

This properly trained man refers to the lubrication chart (top photo) before lubricating the loom (lower photo). Written lubrication schedules should be based on plant experience and advice from the equipment manufacturer and lubricant supplier.

loads are applied for long draft spinning. Additionally, it is desirable that such products not creep or drip onto the material, and semi-fluid type lubricants are often used to obtain such properties. Where wicks are used in the saddles, the lubricant must not separate into soap and oil phases.

Lift rods on spinning frames operate best with lubricants having special oiliness characteristics to eliminate the stick-slip action which might otherwise occur.

Actually, requirements for spindle lubricants are quite exacting to avoid increased friction, excessive spindle wear, excessive oil consumption, and the eventual necessity of thorough cleaning. In the case of oil, for example, exceptionally good resistance to oxidation is needed both in the plain bearing and anti-friction bearing types. Such resistance to oxidation and thickening insures that no sludge is formed and that oil does not thicken and add to the power consumption of the textile mill.

Besides the major requirement that a spindle oil resist oxidation, it is also important that it protect against rusting, since in many cases moisture can and does get into the spindle bolsters; and, unless an oil will protect against rusting, excessive wear and damage to parts can result.

The major requirement, of course, for all spindle oils is that they lubricate satisfactorily without permitting excessive wear and that they also serve as a shock absorber to dampen vibration. High grade spindle oils which are carefully refined have these characteristics and also are often fortified with additives.

Types of additives most commonly used in high grade spindle oils include rust and oxidation inhibitors and additives to impart detergent and dispersive characteristics. In this connection, oils containing detergent and dispersive characteristics have even demonstrated an ability to clean spindles when sludge and deposits have previously been formed through the use of inferior quality spindle oils.

Also spindle oils should have a relatively high flash point, compared with the viscosity of the oil, and they should be light in color to eliminate any staining or discoloration in case they inadvertently come in contact with the material in process. Furthermore, spindle oils should not atomize, foam or evaporate since all three of such conditions can lead to higher oil consumption which increases costs of lubricant and manpower required to apply it.

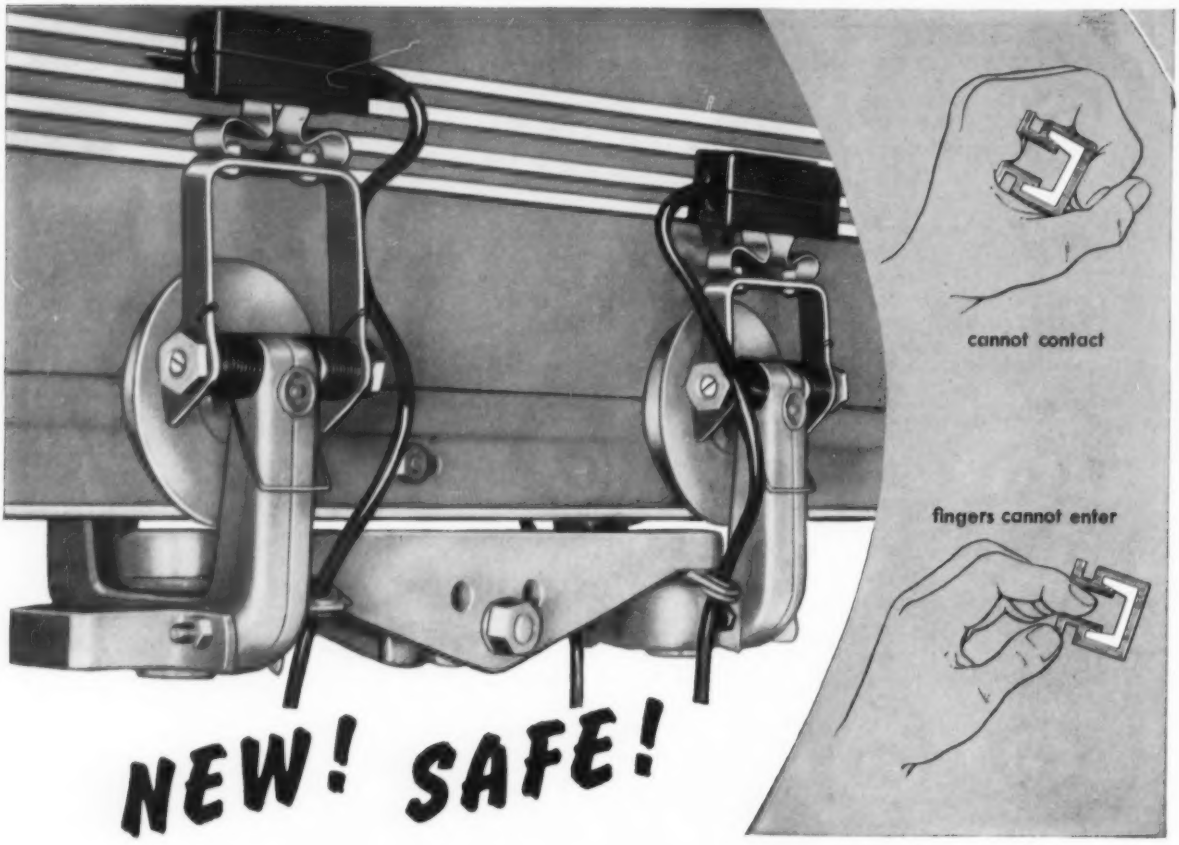
Normally a spindle oil properly selected for the type of unit in which it is designed to operate will show a minimum temperature rise of 10 to 15 degrees above the ambient temperature. Any excessive rise in temperature is an indication of difficulty which could be caused by lack of lubricant.

Although the majority of spindles are oil lubricated, an appreciable number of grease lubricated anti-friction bearing spindles are in use.

Looms. Gears in loom power drives are subjected to shock loading and operate best on lubricants which are adhesive and can protect adequately against wear. Pick cams and harness cams on looms are also subject to shock loads and require lubricants having characteristics similar to the power drive gears.

High speed looms have particular requirements for such EP (load carrying) type of lubricants.

Finishing Machinery. Special high temperature greases or oils are required for the bearings on steam drums of the finishing machinery and on slasher cylinders. Tenter frames which pass through



AMERICAN MONORAIL

KANT SHOCK

SHIELDED ELECTRIFICATION

For Monorail Track and Crane Systems

By covering its standard bus bar electrification with a specially designed polyvinyl chloride extrusion, American MonoRail now furnishes completely safe electrified systems.

This KANT-SHOCK shielding absolutely prevents accidental contact with live bus bars. It is impossible for an adult's finger to enter the shield.

A new type sliding shoe collector provides a floating contact throughout a monorail system regardless of any misalignment due to bent bars or at switch and inter-lock connections.

KANT-SHOCK Electrification positively eliminates all the hazards of open bar conductors — prevents costly accidents — protects employees — reduces insurance rates.

Write for KANT-SHOCK Bulletin KS-1

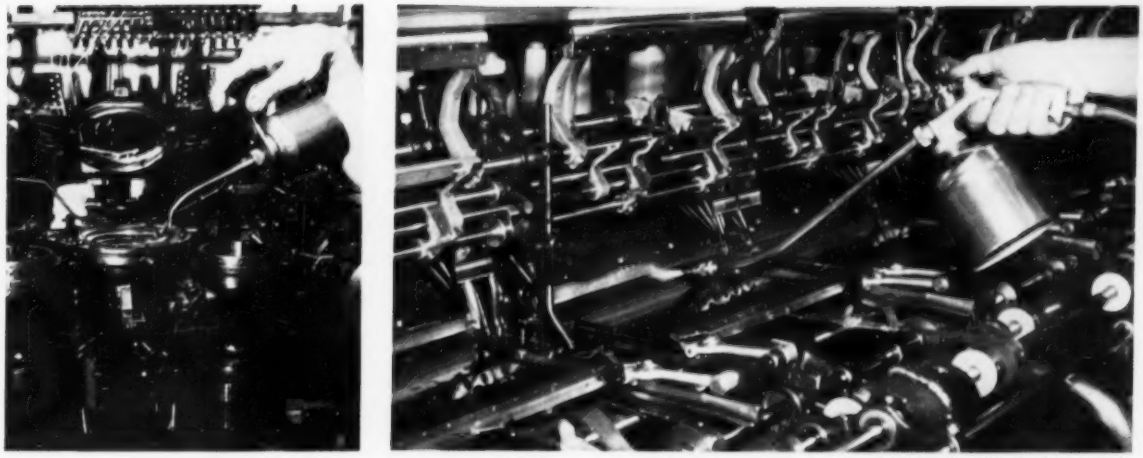
Member of American Textile Manufacturers Association

For Power Driven Conveyors, Use Landahl Chainless Conveyors

AMERICAN MONORAIL COMPANY

OVERHEAD HANDLING EQUIPMENT

13106 ATHENS AVENUE, CLEVELAND 7, OHIO (IN CANADA—CANADIAN MONORAIL CO., LTD., GALT, ONT.)



Courtesy Textile Machine Works

For lubricating the knitting elements of circular (left) and full-fashioned (right) knitting machines, stainless type oils with anti-rusting features are available. Certain reciprocating plain bearings on full-fashioned machines are very susceptible to rusting and require a similar lubricant of higher viscosity. Knitting machine oils must have the ability to operate in close clearances without gumming, oxidizing, or forming disagreeable odors. Caution operatives to avoid using too much oil.

high temperature ovens require lubricants which will not only operate at high temperatures but also which will not drip and stain cloth.

This non-staining feature is particularly important in the finishing and dyeing department, where lubricants must resist emulsifying which might otherwise permit them to contaminate liquid solutions and spoil cloth.

Knitting Machinery. The possibility of rusting with such machinery is perhaps the most prevalent problem. Not only are high humidities normally present but some yarns are passed through water solutions of various types for conditioning prior to knitting.

A particular problem is presented to operators of knitting mills by shut-down periods over weekends which increase the possibilities of rusting. Fortunately, suitable lubricants have been developed and are available to minimize this difficulty. Not only are stainless type oils, normally having a viscosity of approximately 100 seconds SSU* @ 100 F, available with anti-rusting features for needles, sinkers, and other points in close proximity to the yarn and fabric, but other lubricants having similar protective characteristics are available in higher viscosity grades for other parts.

In this connection, for example, some reciprocating plain bearings on full-fashioned knitting machines are very susceptible to rusting. Unless an oil with special protective features is used, such rust can be transferred to the fabric with resultant spoilage.

It is of interest, also, that a lubricant of this type, when used periodically on the hand wheels of full-fashioned knitting machines, eliminates rusting which can be transferred to finished work by the operator's hands.

Lubrication of the high precision, close tolerance parts of knitting machinery requires that the lubricant have the ability to operate in close clearances without gumming, oxidizing or forming disagreeable odors. Oxidation resistance is an important characteristic in view of the large surfaces which are exposed to the air which increases the possibility of oxidation troubles. The lubricant also must have the ability to wet the metal to provide full and continuous lubrication and stay in place for the longest possible periods before the next scheduled lubricant application.

In view of the close proximity of working parts of knitting machines to the yarn and fabric, any surplus lubricant applied may stain the cloth and may cause spoilage unless it can be readily scoured from the fabric in a later finishing operation. The use of a high grade compounded stainless knitting oil will help eliminate the problem of staining. The practical elimination of spotting and staining also requires that the least possible amount of oil be applied which will adequately lubricate the machinery.

When lubrication is intermittent, as in any hand method of application, such as by oil can, brush or atomizer, some surplus lubricant may be applied. It is important in any hand oiling that appropriate re-lubrication periods are selected and strictly followed, based upon recommendations of equipment manufacturers. Such procedure will insure the best compromise between the use of too much and too little lubricant.

One method of reducing the application of excess lubricant is by the use of central lubricators. Additional advantages cited for such type systems applied to knitting machines are less down-time for lubrication, less man power needed for applying lubricant, and insurance against excessive wear from lack of lubrication.

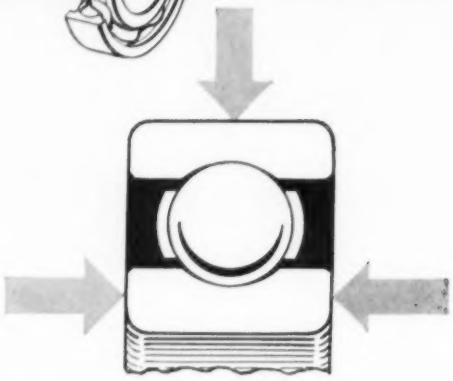
(Reprints of the entire manuscript from which the text of this article was extracted are available from The Texas Co., 135 East 42nd St., New York, N. Y. — The Editors.)

*Saybolt Seconds Universal.

FACTS

about

NEW DEPARTURE BALL BEARINGS



The Word *Versatile*

Fits Like A Glove!

Fits because—this basic New Departure ball bearing, more widely used than any other antifriction type, does much more than carry RADIAL loads—it locates the shaft it supports against THRUST LOADS FROM BOTH DIRECTIONS equally well!

Fits because—with a simple snap ring added, it does away with inside housing shoulders, simplifying mounting and cutting machining costs!

Also—with efficient Sentri-Seal added, without change in exterior dimensions, it eliminates a separate outside closure—assures protection from outside dirt!

And—with Sentri-Seals on both sides, this same basic bearing does away with all separate seals, eliminates all need for lubricating fittings—requires no attention for greasing!

Finally—it is a long-lived, non-separable unit that calls for no shims or other devices for periodical adjustments.

So, specify New Departures of the type that assures you maximum application proficiency and economy.

BALL BEARINGS MAKE GOOD PRODUCTS BETTER

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONN.

Dan River's 75th year

Staff report

DAN RIVER MILLS, Inc., celebrated its 75th anniversary in Danville, Va., on July 1-4 with an open house program, "march of progress" exhibit, and employee party that was complete with merry-go-round, ferris wheel, and other rides for the children.

W. J. Erwin, Dan River president, said the firm is one of the six or seven largest textile corporations in the nation and is Virginia's second largest employer. Founded in 1882, the first mill had 2,240 spindles, 100 looms, and employed about a hundred people. As the company celebrated the diamond anniversary of its founding, the sprawling plants in Danville alone contained about 452,000 spindles, and 9,030 looms. Each working day more than 10,500 employees pass through the mill gates, and an annual payroll of $32,000,000 provides economic impetus to the community.

Climax of the week was a tre-

(Continued on page 183)

Scenes from Dan River's 75th anniversary celebration. Top to bottom: 1—The welcome sign is out for the public to visit the mills on open house day. 2—Dan River's president W. J. Erwin (center) spoke to guests at a luncheon launching activities for the occasion; Basil Browder (left), executive vice-president, also addressed the group; M. A. Cross, director of public relations, outlined the program for the week of festivities. 3—Pausing in the spinning department for a photograph to be made is a group of local citizens who came to see raw cotton transformed into finished fabric. 4—A portion of the March of Progress exhibit, a group of specially designed displays dramatizing the company's progress over the 75-year span. 5—A portion of the more than 30,000 guests who came to the birthday party at the Danville fairgrounds.

IT'S BETTER WIT

Whatever the final use . . . Acrilan Quality Control assures your mill of the top-spinning, smoothest-running fiber in its field.

The uniform top-quality of today's Acrilan acrylic fiber is the direct result of a control system based on specifications, tolerances and standards previously deemed impossible for the newer, man-made fibers.

Thus, luxury blankets of 100% Acrilan acrylic fiber by Chemstrand are the best-sellers in their field. Carpet of 100% Acrilan achieves a resiliency never before attained in the carpet industry. Jersey knits of 100% Acrilan have revived this practical fabric for the children's market, put fresh selling force into women's wash & wear blouses and separates. In the field of woven fabrics, Acrilan acrylic fiber has produced a broad variety of versatile, easy-care, wash & wear fabrics for men's, women's and children's wear.

But whatever the fabric, whatever the end use . . . your own mill can now count on Acrilan performance to

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl St., Dedham, Mass.;

H ACRILAN®!

make the following contributions to efficient, economical operation:

- STAPLE-LENGTH UNIFORMITY superior to the most critical textile needs.
- FLY REDUCTION so significant it is raising yarn quality, reducing mill costs.
- UNIFORM DYEABILITY . . . dye merges have been maintained without change for over two years now.
- FAR BETTER FINISH CONTROL . . . directly responsible for improving carding and spinning uniformity.
- IMPROVED HIGH BULK PROCESSING . . . for greater assurance of fabric shrinkage control.

Applied to *your* mill, don't these advances offer similarly important benefits?

ACRILAN
ACRYLIC FIBER BY CHEMSTRAND
®

Starting Sept. 15th, Acrilan® Acrylic Fiber Promoted Over NBC-TV National Network on the New Sunday Night Comedy SALLY Starring Joan Caulfield

222 South Church St., Charlotte, N. C. • Canadian Agency: Fawcett & Co., 56 High Park Blvd., Toronto, Canada • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND® NYLON—Pensacola, Fla.

Less Slippage, More Poundage, Uniform R.P.M. With This 180° Belt Contact

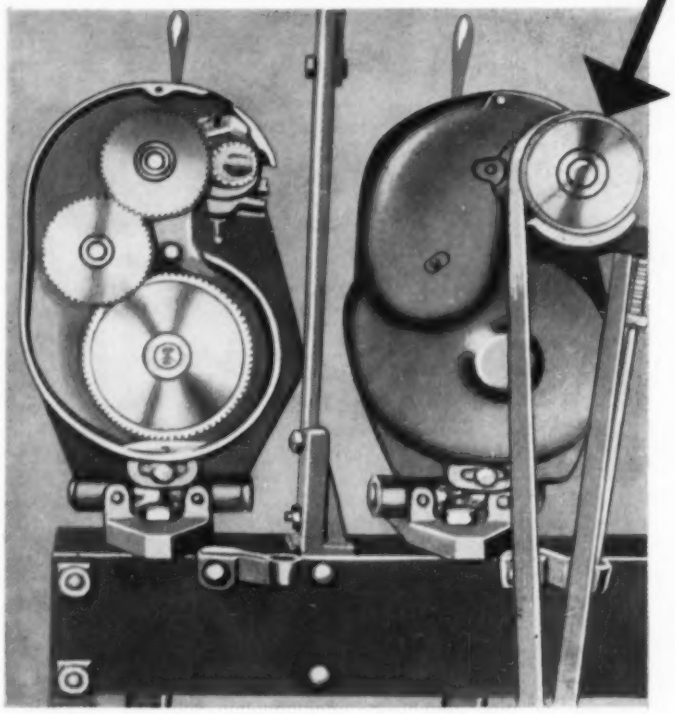


Illustration also shows positive gear driven gainer attachment which controls the ratio between the revolutions of the spindle and the cam.

FACTS ABOUT FOSTER MODEL 75

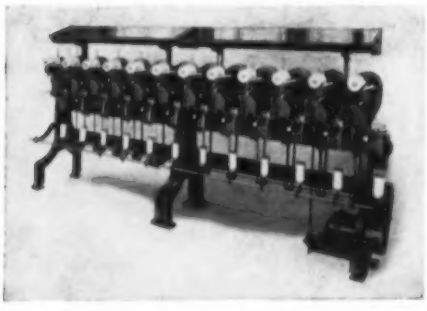
1 HIGHEST PRODUCTION, consistent with good quality. Spindle speeds up to 1500 r.p.m.

2 LOW OPERATING COST. Machine quickly loaded, threaded and doffed. Lifting of convenient handle starts spindle. Durable, positive automatic stop motion.

3 LOW MAINTENANCE & REPAIRS. Floor stands, frames, rails and supply board are made of steel. Spindles are ball bearing mounted. Belts are under tension only when spindles are running. Large diameter, wide angle cam reduces shock and vibration. Tension and pressure adjustments easily made.

4 HIGH QUALITY OUTPUT. Slow starting device prevents stretching and breaking at start. Practically straight thread line (even with oiling attachment) prevents excessive tension build-up. Straight edge cone has slightly convex base to prevent "nipping" when knitting or warping. Foster Zenith Yarn Cleaner provides accurate inspection. Tension automatically compensated for changing yarn speed. Oiling attachment designed to provide uniform application of oil.

Bulletin A-95-A on request



Each spindle on the Foster Model 75 (for winding rayon, nylon, silk and other yarns) is driven by its own belt from a countershaft running the length of the machine. There is a quarter turn in each belt and a full 180° arc of contact is obtained. Result — less slippage which means increased production and uniform r.p.m. of all spindles.

This is only one of many reasons why the Foster Model 75 produces an ideal cone (straight edge or pineapple) at minimum cost for knitting or warping. Other contributing factors are listed herewith.

FOSTER MACHINE CO., WESTFIELD, MASS., U. S. A.

Southern Office: Johnston Bldg., Charlotte, N. C. Canadian Representative: Ross Whitehead and Company Limited, 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.; European Representative: Muschamp Textile Machinery Limited, Keb Lane, Bardsley, Oldham, England.

FOSTER MODEL 75

FOR WINDING RAYON, NYLON AND OTHER YARNS

mendous 75th anniversary birthday party at the fairgrounds for employees and their immediate families. The company's guests, numbering more than 30,000, were entertained with carnival rides, a stage show, a mammoth fireworks display, and two dances. Throughout the party, which began at 2:00 p.m. and lasted until 12:00 midnight, food, soft drinks, and entertainment were free. Guided mill tours showed visitors the key operations in the process of transforming raw fiber into finished fabric.

The 75th anniversary week marked the high point in the ceremonies commemorating Dan River's diamond jubilee year. Earlier, the Danville Chamber of Commerce honored the company for its contribution to the city's progress.

With acquisitions made in 1956, Dan River now has textile plants in 14 other communities in Alabama, Georgia, and South Carolina. Including its Alabama Mills Division, plus Woodside Mills, a majority-owned subsidiary, the company operates more than 800,000 spindles and 18,000 looms. Total employment, including sales personnel at its New York sales headquarters and 15 branch sales offices in the leading apparel centers of the United States and Canada, is almost 18,000.

Last year, Dan River's sales totaled more than $122,000,000.

Pictured above is General Alfred M. Gruenther, president of the American National Red Cross, as he delivered the main address at a banquet Tuesday, July 2, commemorating the 75th anniversary of Dan River Mills, Inc. Flanking him at the head table are W. J. Erwin, Dan River's president, Basil D. Browder, executive vice-president, and the Honorable Thomas Stanley, Governor of Virginia. The birthday cake is in the foreground.

Mills can get tables for predicting cotton yarn strength

■ A set of tables for predicting the strength of cotton yarns, developed by J. F. Bogdan, director of processing research, has been published by the Department of Textile Research, School of Textiles, North Carolina State College. The tables are the result of work conducted by Mr. Bogdan in his continuation of studies of the factors affecting yarn quality initiated some time ago by the late Dr. F. T. Peirce.

Using these tables and the known strength of yarns spun from a particular mix of cotton, mill men can predict the strength of yarns from 6s to 50s spun from the same cotton using any twist multiplier from 2.5 to 5.5. Conversely, the twist multiplier required to yield a given strength in a given yarn number can be determined.

While the tables are primarily for carded yarns, they can also be used for combed yarns.

Copies of the tables can be obtained by writing the Department of Textile Research, School of Textiles, N. C. State College, Raleigh.

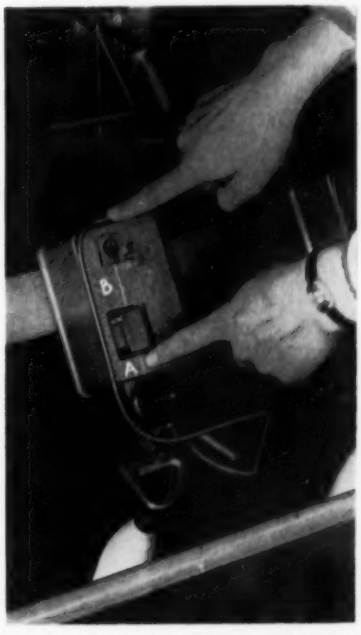
Electronic slub catcher reported to be 99% efficient

■ An operating efficiency of 99 per cent at winding speeds ranging from 200 to 1200 ypm is claimed for an electronic slub catcher which was recently developed. When this figure is compared with the 10 to 15 per cent efficiency said to be provided by conventional mechanical slub catchers, it would seem that quite a saving in manufacturing cost could accrue to the user of the new Dutch-made device.

It is expected that application of the unit will not be restricted to winders only; it will be designed for installation on any machine where use of a slub catcher would be profitable.

In practice, the manufacturer points out, the number of stops is not proportional to the cleaning ratio. In a test with 60s cotton and a clearing slit of 3 mm, the mechanical clearer was so tight that yarn quality was reduced by abrasion. About 12 per cent of the slubs were caught: dust, knots, seeds, and neps added about three stops per slub. The total number of stops per 100 slubs was about 48. The electronic slub catcher on an identical yarn caused no extra stops, and the total number of stops was about 99 per 100 slubs. Number of stops for weak spots was, in both instances, about 25. The total number of stops, therefore, rose to 73 and 124, a factor of 1.7. The clearing ratio, however, rose from 12 to 99, a factor of 8.2.

It is reported that several large West European mills have adopted the new slub catcher which is produced by Qualitex N.V. Electronische Apparatenfabriek, Enschede, Koningstraat 81-83, Holland.



Courtaulds did it!
Courtaulds cooked
a Coloray fabric
in a pressure-cooker
at 230°— hotter
than boiling! And
the color didn't
fade, streak or run.
That's colorfastness!

®COURTAULDS'
COLORAY®
Solution-dyed rayon fiber with captive color...can't escape!

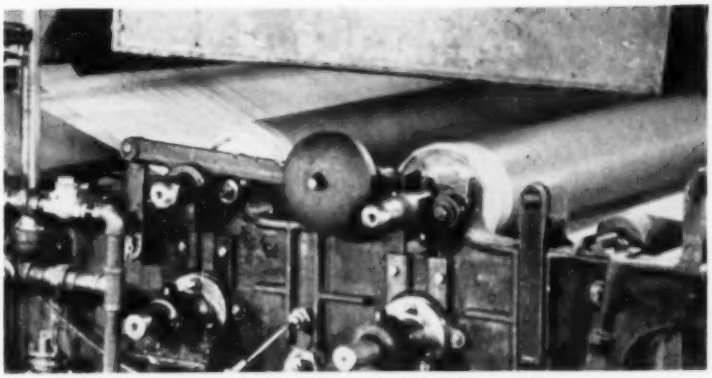
For further information, write:
COURTAULDS (ALABAMA) INC.,
first name in man-made fibers, first name in solution-dyeing,
600 Fifth Avenue, New York 20 • Greensboro, N. C. • Le Moyne Plant, Mobile, Ala.

WARP SIZING

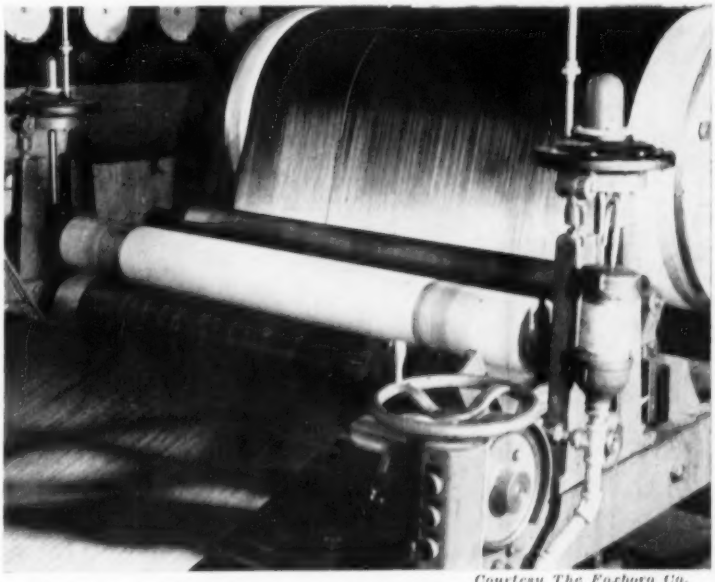
Article 17—Discussion of methods for loading squeeze rolls, recently developed size boxes, and operation and care of slasher cylinders*

By Paul V. Seydel, D.Sc.
Seydel-Woolley & Co.

Exclusive



One type of lever-weighted finishing roll.



Courtesy The Foxboro Co.

Slasher equipped with pneumatic loading system which regulates the pressure exerted on the yarn by the squeeze rolls. This system augments the versatility of the slasher and facilitates quick changes.

IT is good practice to weight the squeeze rolls, provided it is done uniformly on both ends. This can be done by using a lever with a weight suspended from one end. The other end is fastened to the frame of the box, and a bearing between exerts pressure on each spindle of the squeeze roll. This gives a method of varying the pressure of the squeeze roll to take care of different kinds of sets.

To repeat, care should be taken that both ends are kept equally weighted.

In addition to the weight of the set, the action of the finishing roll is also affected by the speed of the slasher, higher speeds requiring heavier rolls. For better control of the rolls, the modern high-speed slashers utilize a pressure assembly system.

The rolls are mounted in a cradle with anti-friction bearings. The cradle is supported by a vertical shaft mounted on a piston that operates in a large air cylinder. Air pressure acting on this piston is used either to create a much greater pressure on the squeeze roll than gravity would exert; or acting in the other direction, to raise the squeeze rolls for washing, changing blankets, or reversing position.

One method of adding weight to the squeeze rolls is to have them held in place by means of a coil spring. The pressure can be increased by turning a screw. This type of device is often seen on finishing machinery, and is used on many household wringers. Although this is a convenient way to vary weights, it is very difficult to obtain uniform pressure with an ordinary set of springs, unless the set-up is carefully designed for the purpose. There is at least one such roll-loading system on the market, which is so designed that an arrow indicates on a scale the amount of pressure which is being applied, so that the same amount of pressure may be obtained each time the load is applied. The roll itself is suspended in ball bearings mounted in slots, and the pressure is applied by the spring against the bearings.

More frequent use is being made recently of synthetic-rubber-covered squeeze rolls. Despite the advantage of saving in upkeep and in

*Continuation of discussion of the slasher room and its equipment, which began in the June issue. The first article of this series, which deals with all phases of the warp sizing operation for cotton yarns and yarns produced from man-made fibers, appeared in the May, 1956, issue of this magazine. Reprinting of the entire series in book form is planned.

are you getting THE MOST out of your BARBER-COLMAN machines?

BARBER COLMAN

Any time is a good time to take a close look at your Barber-Colman Automatic Spoolers, Super-Speed Warpers, Warp Drawing Machines, and Warp Tying Machines—to see if they are continuing to deliver their original high performance. You have a substantial investment in these machines, and you are entitled to a continuing return on that investment. It would be a good idea to be sure that nothing in the *performance* of the machines is keeping you from getting that return.

MAY WE HELP YOU?

Our Service Department people are available to assist you in determining the operating condition of your machines and to indicate what, if anything, might be needed to put them at their peak of efficiency. The men who do this work are thoroughly experienced on all Barber-Colman machines. If you are interested in taking advantage of this service, just get in touch with your regular Barber-Colman representative, or write direct to the main plant.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U.S.A. MANCHESTER, ENGLAND MUNICH, GERMANY

INDIA	MEXICO	BRAZIL	JAPAN	PAKISTAN	PAKISTAN
Batliboi & Company Forbes Street, Fort Bombay, India	J. Rabasa Isabel la Catolica 45-913 Apartado 7348 Mexico D.F., Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201/3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 13 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

labor, synthetic-covered rolls were not rapidly adopted for cotton and spun rayon when they were introduced several years ago. Many operators found that they did not get proper dressing-off of the size when a synthetic-covered roll was used on the finishing roll on slashing spun yarns, although filament yarns seemed to size satisfactorily with these rolls.

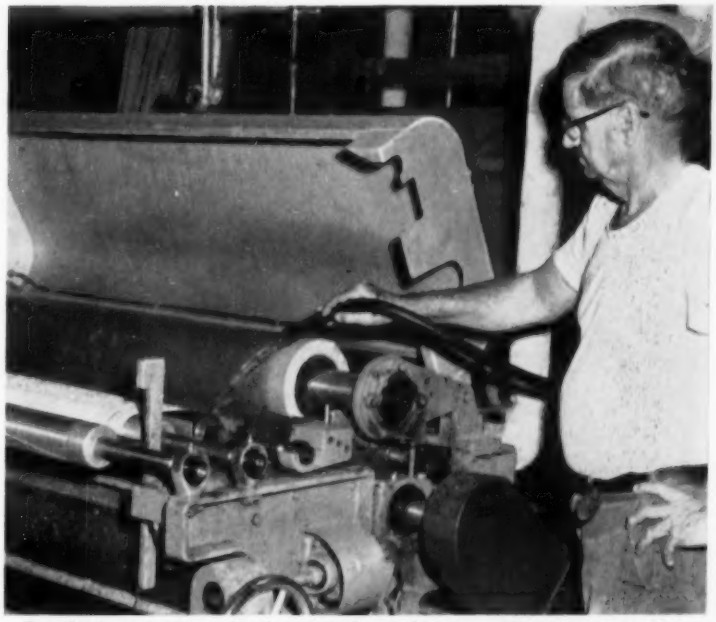
Consequently, those operators who had bought a pair of rolls very often found themselves putting blankets back on the finishing roll and using their synthetic-covered rolls for the first squeeze roll.

Most of the troubles probably came from a difficulty in determining the proper hardness for the rubber rolls. A roll that was too hard did not dress off the size properly, as it would not fit around the yarn contour, as did the blanket or yarn-wound rolls. One which was too soft, spread out too much and did not localize the pressure sufficiently. In addition, the soft rolls wore out rapidly, and would not stand the gaff.

There is still much controversy about the superiority of each of the three types of rolls. And still, with the synthetic-rubber covered rolls, there is some controversy about the proper hardness. Rolls are made generally with a hardness of from 40 to 65, as measured on the Shore scale for determining comparative hardness or "density" of materials. The optimum has not yet been determined—and indeed, it may vary according to the requirements of the different mills, according to the size formulas, and according to the yarns or sets to be slashed.

Recent work with the synthetic rolls shows that better results are obtained when the rolls are used at higher pressure loads than those used with blanket-covered rolls, or yarn - wound rolls. Some mills claim that they work satisfactorily when used at loaded roll weight equivalent to 1000 to 1200 pounds.

A recent development in the synthetic-covered roll field is the "tapered-density roll." This operates on the theory that the outer part of the roll, the part in contact with the yarns, should be soft enough to be able to be squeezed around the yarns and fit them better, but that it should be backed up by a more resistant material to eliminate the difficulties otherwise encountered with soft rolls.



Synthetic squeeze rolls in a modern size box. Here the operator cleans them by hosing between sets.

One manufacturer is producing a roll whose cover contains a lot of tiny solid particles. Those on or near the surface fall out of the roll when it is buffed or ground, and when it begins to work, so that the surface of the roll is a little porous, in the nature of foam rubber. This gives the surface an effective softness, while the inside of the roll, still containing this filler, is comparatively hard.

A good synthetic-covered roll should not need buffing more than once or twice a year, and should last for a number of years. Care should be taken to keep the rolls clean, as size hardening on the surface of the roll will cause it to deteriorate more rapidly, becoming hard and cracking.

Although synthetic rolls are used in proportion much more with filament yarns, their use with cotton and spuns is increasing. They have become standard equipment on the Griffin size box. The advantages are: saving in labor and time for blanket-changing, saving in over-all cost of blanket material, lack of lap-marks on the warp, and smoother running in the box because of a perfectly round surface. The disadvantage is that many mills report that they are unable to obtain a satisfactory dressing-off of the yarns, as compared with the results obtained with blanket-covered and yarn-wound rolls.

Which type to use is still dependent on the conditions and preferences of the individual mills, and we expect the controversy to continue for several more years at least.

For uniform results when running several slashers, the finishing rolls on all slashers should be of the same weight, provided the same type of sets is being run. Some mills keep several weights of rolls for use with light and heavy sets.

Rather radical departures from the conventional size box design are found in the Griffin and Shirley size boxes. Both aim at a size box with a much smaller liquid capacity than those customarily used, which not only eliminates waste when the size is discarded for cleaning out or for changing formulas, but also insures maintenance of fresher size in the box.

GREATER TEXTILE OPPORTUNITIES WITH

SARAN

STAPLE • MULTIFILAMENT • TOW

NOW IN A COMPLETE NEW RANGE OF BUILT-IN COLORS

This unretouched microphotograph is a dramatic illustration of the smooth uniform roundness of SARAN Fibers—why they shed grit, dirt and stains—why they offer unusual cleanability, long wear and easy care to finished fabrics. But, even this does not tell the full story, for SARAN has a number of other unique characteristics:

1. **FIRE RESISTANT**—will not support combustion
2. **EXCELLENT ELASTIC RECOVERY**—fabrics won't "cup" or "bag"
3. **UNAFFECTED BY MOISTURE**—moisture will not cause stretching or shrinking
4. **STRENGTH**—equal strength, wet or dry
5. **HIGH ABRASION RESISTANCE**—tough and durable for long wear
6. **FLEXIBILITY**—greater flexibility, size for size, than any other fiber
7. **GOOD COLOR FASTNESS**—colors are "built-in" for greater stability
8. **LUSTER**—desirable sheen for extra sales-appeal
9. **EASY CLEANABILITY**—dirt and most stains cannot penetrate the round smooth fibers—are easily removed

THESE ARE NOT EXAGGERATED ADVERTISING CLAIMS — THEY ARE FACTS . . . proved beyond question in extensive laboratory, field and use tests on fibers and fabrics. Data available on request.

SARAN can make very definite contributions and add a list of impressive selling features to many types of fabrics. If you're a weaver, you can't afford not to check the possibilities SARAN offers for the improvement and increased sales-appeal of your fabrics.

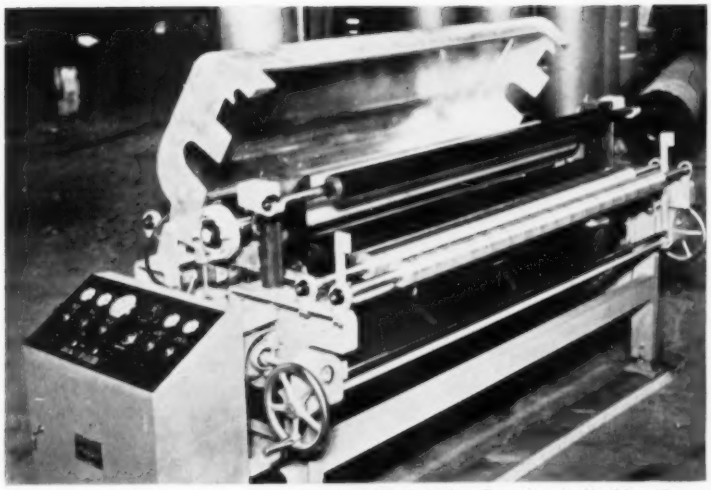
SALES AGENTS:

THE HALL COMPANY
LARCHMONT, NEW YORK

MANUFACTURERS:

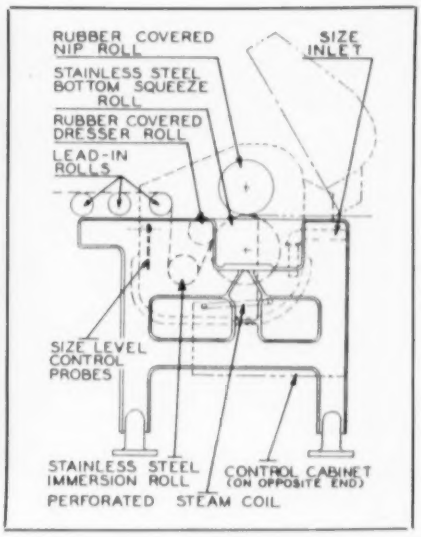
THE SARAN YARNS COMPANY
ODENTON, MARYLAND

SARAN yarns



Courtesy West Point Foundry & Machine Co.

The Griffin size box and sketch to show placement of rolls.



The Griffin Size Box. The Griffin box is characterized by a complete redesigning of the squeeze roll system, as shown on the accompanying sketch. Instead of using two pairs of squeeze rolls as is the customary American practice for cotton and rayon slashing, this box utilizes one large bottom roll with two smaller rolls pressing against it. Both of these rolls are synthetic-rubber covered, and no blankets are used.

From the immersion roll, which is in the normal position, the yarns go to the large roll which is partially immersed in the size. At the point where the yarns meet this roll, a small "dresser roll" contacts the large roll and gives a preliminary dressing off of the size. At the top of the large roll, the warp sheet goes under a second medium-sized nip roll which gives the finishing squeeze to the yarns.

The system thus differs from the usual system essentially in that the yarns do not again come into contact with appreciable amounts of size before the second nip, as they do in the usual slasher box, where the size is picked up from the trough by the metal squeeze roll of the finishing rolls.

Both of the rolls which contact the large stainless steel roll may be "loaded" by air-operated pistons to control the pressure at the nip of each roll. The pressure may therefore be adjusted according to the speed, weight of warp, size characteristics, etc., in order to get the proper amount of dressing-off required for any particular set of conditions. At higher speeds, for instance, the pressure may be increased in order to maintain a uniform pick-up. When the slasher goes into creep speed, the pressure is released automatically to prevent dressing off too much size.

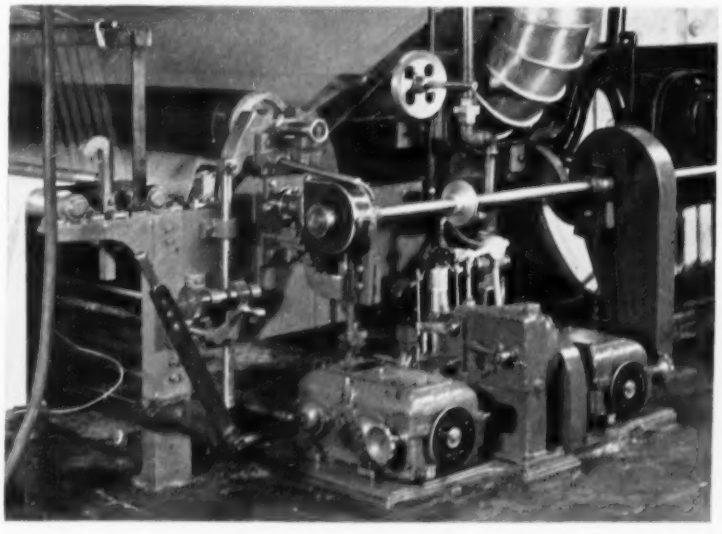
For conservation of steam, the box is insulated and covered. The cover is counter-balanced for ease of lifting, and is heated with an electric rod heater to prevent condensation on the lid with a resulting drip-back of water onto the yarns. Not only does this design conserve steam, but it is claimed that there is much less hard size, since there is less tendency to surface evaporation, and therefore less chance of scum formation due to drying of the starch on the surface of the size.

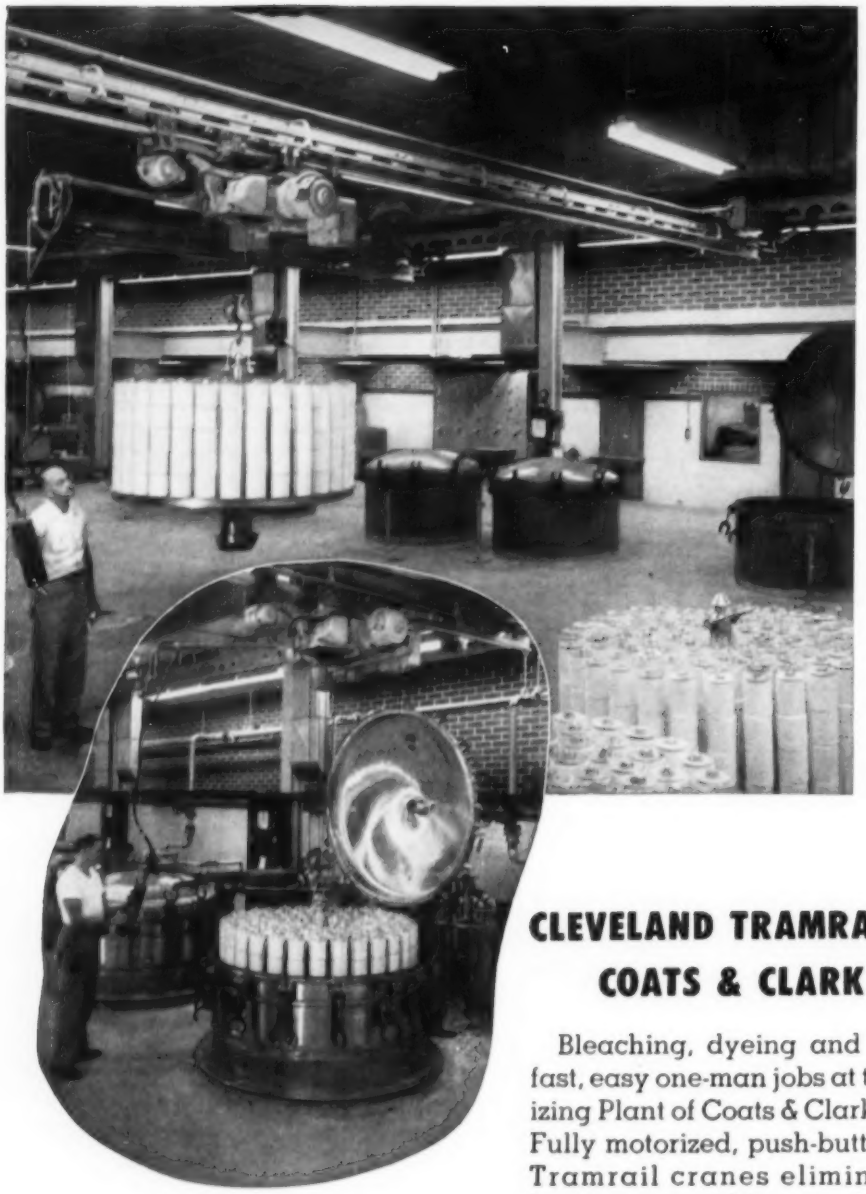
An instrument panel controls and shows the pressure being exerted by the rolls and the temperature of the size bath. The level of the bath is also controlled, adding size automatically as it is used.

The Shirley Size Box. The principal characteristic of the Shirley

Mill installation photo of the Shirley size box.

Courtesy British Cotton Industry Research Association and Atkinson, Hanwick & Co.





A JOB WELL DONE

Here is how Coats & Clark feel about the Cleveland Tramrail installation, as expressed in a letter from Mr. L. P. Greer, Jr., Chief Engineer, to Mr. J. C. Wilkins of Cleveland Tramrail Atlanta Company:

"There comes a time on a job when one must sit down and take stock of those who deserve praise and recognition for their efforts in making the job successful. During the course of this job, it has been extremely satisfying to have dealt with you and Cleveland Tramrail on the overhead crane handling system. I wish to extend to you my sincerest thanks for a job well done."

One of five 2-ton, 37'-4" long completely motorized Cleveland Tramrail cranes at Coats & Clark, Inc., Toccoa, Georgia. Speeds: Crane travel 150 fpm, carrier travel 75 fpm, hoist 6 and 20 fpm. Safe electrification is obtained by use of Cleveland Tramrail SAFPOWRBAR conductors.

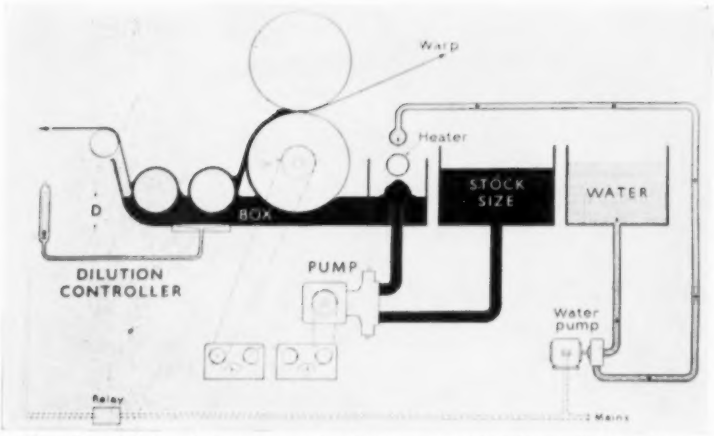
CLEVELAND TRAMRAIL CRANES SERVE COATS & CLARK TOCCOA MILL

Bleaching, dyeing and drying operations are fast, easy one-man jobs at the new Thread Mercerizing Plant of Coats & Clark, Inc., Toccoa, Georgia. Fully motorized, push-button-operated Cleveland Tramrail cranes eliminate the need of any heavy manual lifting and enable handling large production units and thereby bring about increased efficiency.

GET THIS BOOK!
BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
2881 EAST 287TH ST. WICKLIFFE, OHIO

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT



How the Shirley size box operates is shown in this schematic drawing.

size box is a rather ingenious method of forcing the warp yarns to pick up a certain percentage of size. The size pick-up can be controlled by changing the settings of the controls.

This predetermined size pick-up can be kept constant regardless of variations in such things as temperature, viscosity, age of size, type of yarn, condition of squeeze rolls, speed of slasher, etc.

Accomplishment of this seemingly amazing control is by control of the size concentration. Assuming that the yarns pick up size at a certain rate from the size box, if we replace this size at the rate at which it is being picked up, a constant level can be maintained in the box.

But suppose the size were replaced a little slower than it was used up. To maintain the level, a little water would have to be added, which would dilute the mix, with a resultant lower solids pick-up on the yarn. This is the principle on which the Shirley box operates.

The Shirley box is equipped with a metering pump which feeds a concentrated size to the size box. This pump is tied in to the slasher drive so that its speed varies with changes in slasher speed. By means of an adjustment on the pump, its speed can be regulated to add to the box a certain number of pounds of size solids for every hundred pounds of yarn which passes through the box. By using a size concentration which would add too much weight if used normally, and pumping this concentrated size into the box at the desired rate, the level may be kept constant by adding hot water. The solids pick-up is thus accurately controlled, since the desired amount of size must be picked up by each pound of yarn.

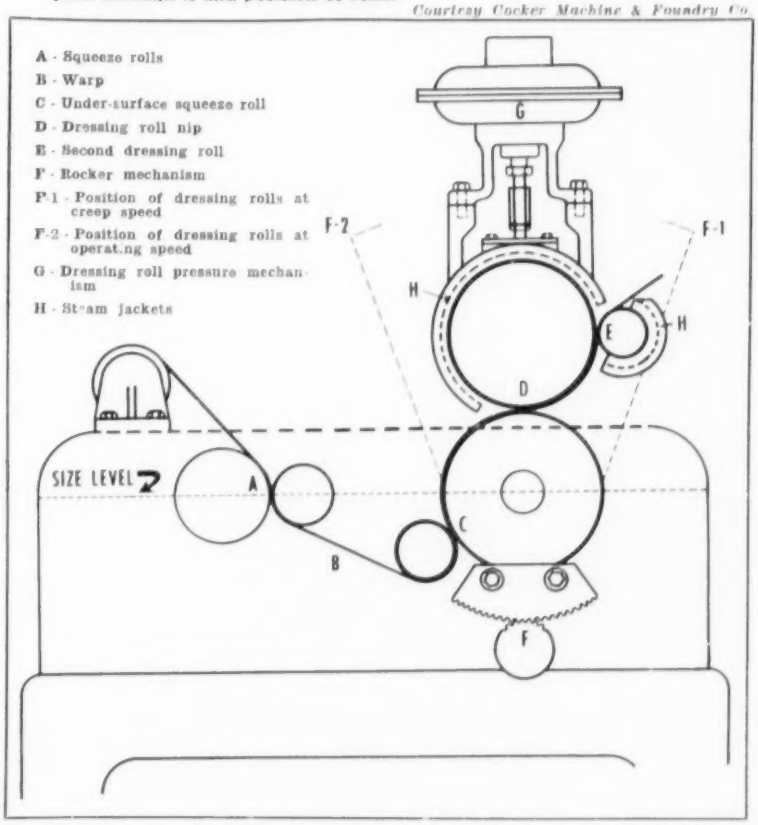
As any change will have to be compensated for by change in size concentration, the smaller the box is, the more rapidly its concentration can be changed. The Shirley box is designed to hold only about ten gallons of size.

The size is not pumped directly into the box, but into a pre-mixing trough, to which hot water is continuously added by a level control arrangement. From this trough, the size flows into the main working trough, ready-mixed.

The Cocker "Size Master." Another innovation in the application of size to warps is found in the "Size Master" box (see accompanying sketch). In this size box, the warp is put through four separate nips. The first is at the size level, with the two rolls at this point so positioned that the nip is vertical instead of horizontal. Here it is claimed that the air is squeezed out of the yarn before it passes into the size bath, so that the size should be better able to penetrate the yarn. A second squeeze is given

Cross-section sketch of the "Size-Master" size box, showing path of yarn through it and position of rolls.

Courtesy Cocker Machine & Foundry Co.



Now the most versatile chelating agent is also the lowest in cost

VERSENE 100

effective over a wide pH range, available from two stock points

Now—in solving metal ion problems—you can have your cake and eat it! Thanks to Versene® 100, a liquid concentrate of tetrasodium salt of ethylenediaminetetraacetic acid.

Stable to acids and alkalies even in boiling solutions, Versene 100 inactivates calcium, magnesium and other metal ions. It will not revert to an inactive form. Versene 100 ties up these contaminants completely within an inner ring structure . . . actually forms a new, harmless compound with hardness and trace metals in solution. Applications in textile and rubber processing, in chemical purification and boiler descaling, in soaps, syndets, all types of detergent formulations have proved Versene 100 the most versatile and effective chelating agent commercially available. And now, it's also the most economical! Available from two stock points at Framingham, Massachusetts, and Freeport, Texas.

Free new brochure!

To describe more fully Versene 100 and the several other Versene and Versenol* products for chelation, an informative 16-page brochure has been prepared for your personal use. You'll find it valuable. For instance, if iron ions were a contamination factor in your process or in your product, this booklet would quickly refer you to an iron-specialty agent such as Versenol® 120. A liquid, Versenol 120 complexes both ferrous and ferric iron over a wide pH range.

Fact is, you'll find this booklet's discussion of the chemistry of chelation, Dow chelating agents and their uses helpful in correcting any metal ion problem. With the Versene and Versenol products practically every metal ion in any solution can be chelated. Contact your nearest Dow sales office for "Keys to Chelation". Or write us direct. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. CA 1313C-1.

*Trisodium salt of N-hydroxyethylethylenediaminetriacetic acid

YOU CAN DEPEND ON DOW

under the surface of the size which should squeeze out more air and give still further penetration.

The warp then passes between the main pair of squeeze rolls or dressing rolls, and excessive size is removed. This is followed by a final nip between a small roll and one of the large dressing rolls, to dress off the last bit of excess size.

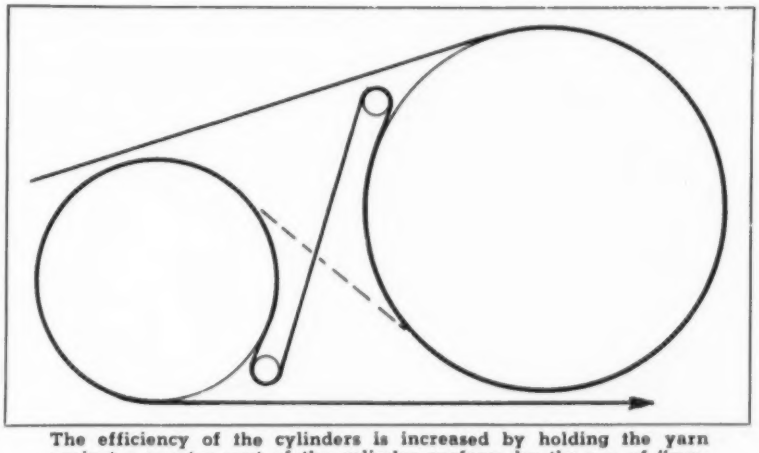
The distinguishing feature of this size applicator is the rocking motion of the pair of dressing rolls. When the slasher is traveling slowly, the rolls rock toward the front of the slasher, giving a little more distance for the warp to travel before dressing of the excess size. It is said to have then more time to penetrate the yarns, so that more stays with the yarn after dressing off. At higher speeds, the rolls move toward the rear, shortening the distance of travel. The makers claim that the differences thus obtained are great enough to compensate for the well-known tendency of the size pick-up to increase with increase in slasher speed. The pressure on the dressing rolls is also automatically decreased at low speeds to help compensate for this variation.

Another unusual feature of this size box is the system of steam-jacketing the two top dressing rolls so that they will be kept as hot as the rest of the box.

Drying. Proper drying of the size film is as important as any other consideration in producing a good flexible film that will not shed. Insufficient drying may leave so much moisture in the yarn that if the beams are stored for any length of time, mildew may result. With the use of a small amount of antiseptic in the size, there should be no danger with less than 9 or 10 per cent moisture with cotton, or 12-14 per cent with viscose.

On the other hand, over-drying produces a brittle film which sheds easily. Also, starch films that have been baked are similar to toast in that they never again recover the original elasticity of a properly dried film, no matter how much moisture may be put back in them.

For this reason, slashers should not be pushed beyond their designed capacity by increasing the heat in the cylinders. The use of contact rolls to hold the yarn on the cylinder surface will increase the capacity of the slasher by increasing the drying surface. A 20 to 30 per cent increase in capacity may be realized if enough steam is fed to keep the cylinder surfaces at the same temperatures.



The efficiency of the cylinders is increased by holding the yarn against a greater part of the cylinder surfaces by the use of "contact" rolls. Dotted line shows path of warp without contact rolls.

The production of a slasher, ignoring the effect of variations in yarns, yarn counts, and number of ends, is dependent on the steam pressure and the surface area. A standard two-cylinder slasher with seven- and five-foot cylinders, should dry around 315 pounds of yarn per hour, presuming approximately 100% wet size pick-up. This can be increased about 20% by the use of "contact rolls" or guide rolls to hold the yarn on the cylinders for a greater distance of travel. Slashers with four five-foot cylinders may attain drying rates of from 900 to 1000 pounds per hour.

Standard "cotton slasher" design utilizes one five-foot and one seven-foot diameter cylinder, with the yarns threaded to the larger cylinder first. Recently a number of mills have been adding an extra cylinder.

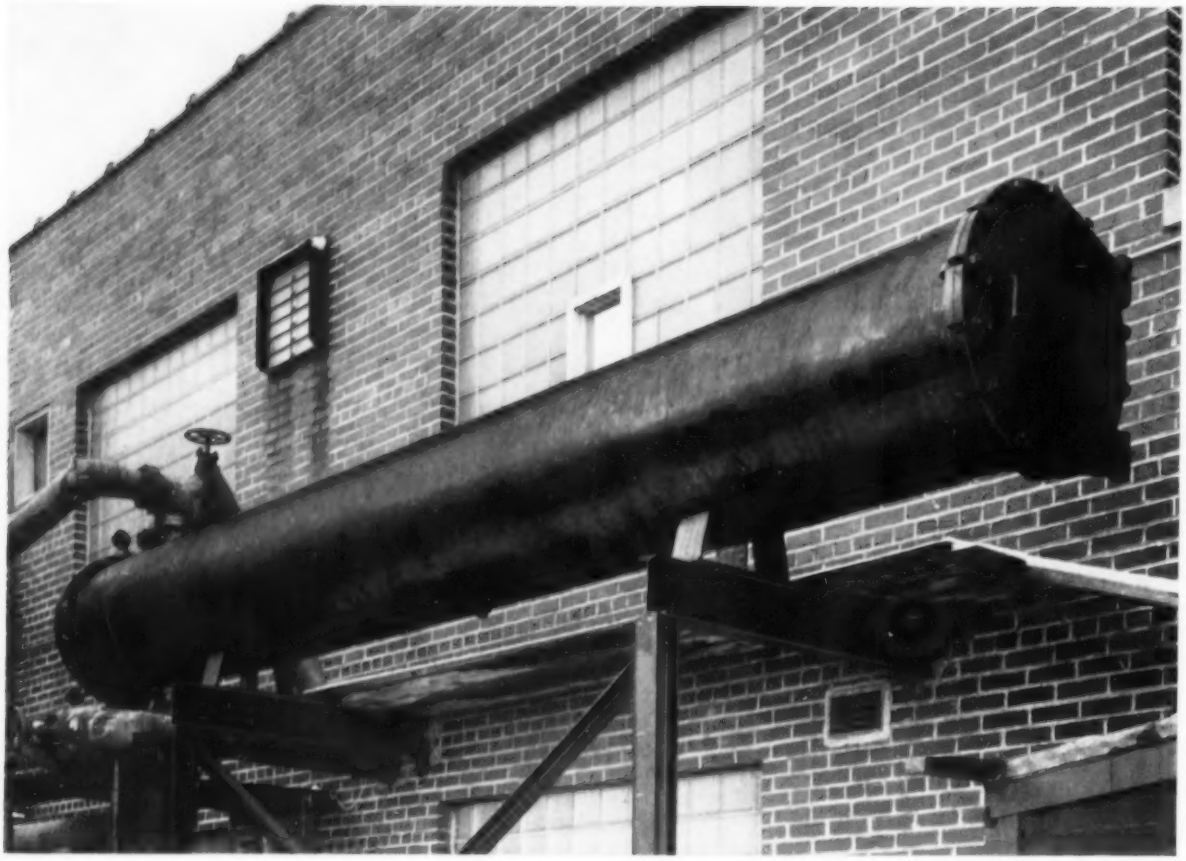
It is claimed by some that when five-foot cylinders are added, there is a greater tendency toward sticking on this cylinder (with most designs the added cylinder takes the warp first). This is supposed to be a result of insufficient drying that leaves the size film in a sticky condition as it leaves the cylinder. For this reason, seven-foot cylinders are preferred. (Generally, slight adjustments in the size formula can overcome sticking tendencies.)

Increases of capacity from 35 to 55 per cent have been reported with the addition of an extra cylinder.

The "high-speed" cylinder slasher has four five-foot cylinders. To decrease the tendency of the size to glue the yarns together, half of the warp sheet is given a preliminary drying on the first cylinder, and the other half on the second cylinder. With the yarns partially dry, the two halves are rejoined, and dried together on the third and fourth cylinders. This is particularly advantageous for slashing either very heavy sets, or very wide sets. Production of as much as 1000 pounds per hour is claimed.

Cylinder surfaces must be kept clean to prevent sticking. They should be kept free from dents or blisters that will hold the yarn away from even contact with the cylinder, thus leaving partially dried spots. For efficient operation, the steam line to the cylinders must be properly trapped, and the buckets or siphons in the cylinders must be in working order, so that condensed water is removed as rapidly as it is formed.

The first (large) cylinder should be somewhat cooler than the second. If three cylinders are used, the third should be cooler than the second. The first cylinder should be cooler, so that a slower evaporation of moisture may take



P-K heat reclaimer outside dye house salvages BTUs from waste water to preheat incoming fresh water. Unit paid for itself in fuel savings in nine months.

HOW BLUE RIDGE TEXTILE CO. SAVES $8,000 A YEAR ON FUEL OIL

Heat that was going down the drain with waste water at Blue Ridge Textile Co., Bangor, Pa., is now saving this company 120,000 gallons of fuel oil a year. In addition, Blue Ridge maintains 180°F. water for dyeing operations with lower boiler capacity than was possible two years ago.

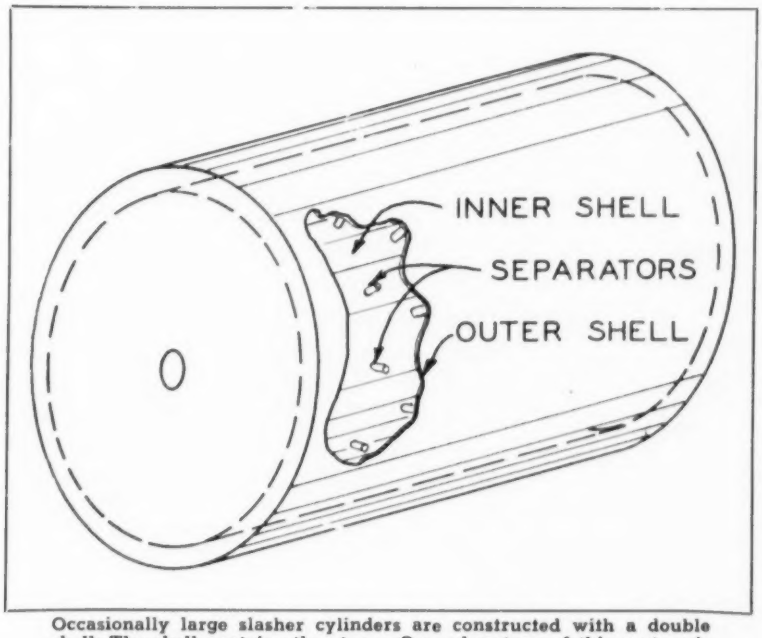
That was when the company installed a Patterson-Kelley Waste Water Heat Reclaimer. This unit extracts enough heat from spent dye liquor to preheat incoming fresh water to 120°—and save $8,000 a year on fuel costs. The preheated water is pumped to a P-K storage water heater where it is easily brought to 180° for the dye tubs.

Substantial savings from more efficient heat transfer may be possible in your plant, too. P-K engineers can help you achieve them, because P-K specializes in designing and custom building heat transfer equipment. Write Patterson-Kelley Co., Inc., 119 Wilson St., East Stroudsburg, Pa.

Patterson Kelley

Laundry and Textile Division

Waste Water Heat Reclaimers • Storage Water Heaters • Condensate Coolers
Instantaneous Heaters • Steam-Mizers • Feed Water Heaters



Occasionally large slasher cylinders are constructed with a double shell. The shell contains the steam. One advantage of this system is to minimize radiation from the ends of the cylinder.

place. The temperature of the last cylinder should be controlled to decrease any tendencies toward baking the size film on the yarn after the moisture content has been reduced by the other two cylinders.

The actual temperatures to be used will vary according to the type of goods being dried, and other local conditions. A good average would be about 220, 230, 220 F. Although more production is obtained in the slasher room by increasing these temperatures and obtaining quicker drying, if this is carried too far it will be at the cost of lower production in the weave room, resulting from less elastic size.

Some of these large slasher cylinders have been designed with a double shell, having a three-inch annular space between the inner shell and the outer shell for the steam. Although this construction is a bit more expensive, it is claimed to do more than pay for itself through the savings in steam, since there is much less loss from radiation, due to the fact that the heads are not steam-heated.

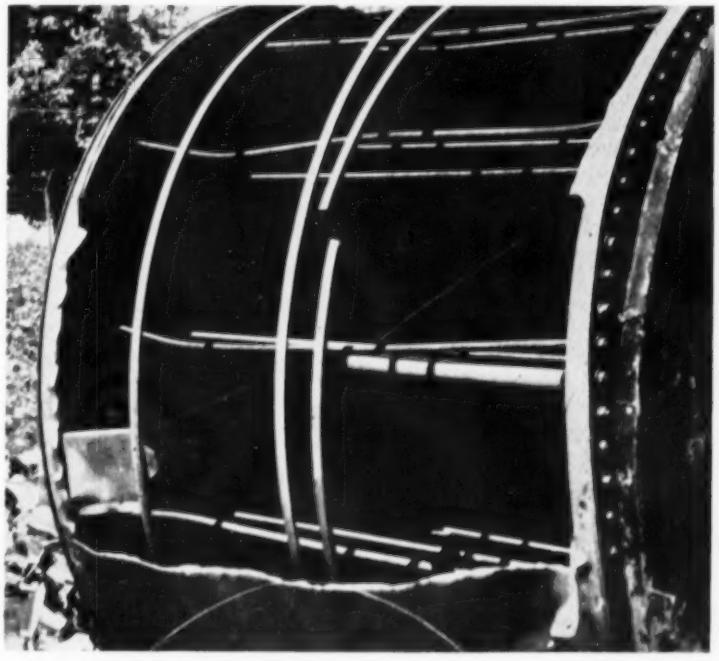
It might be of interest at this point to note that several mills reported their cost for steam at one of the operators' slashing discussions: among five mills, the cost reported varied from 0.1 cents to 0.226 cents per pound of yarn dried.

The cylinders may be either positively driven, or pulled by the yarns. In some cases, the first cylinder is pulled by the warp and the other is positively driven. Cylinder bearings should work well because a tight bearing will cause excessive stretch. Sometimes the positively driven cylinders have a ratchet let-off to prevent the gears acting as a brake when the speed is not adjusted exactly to the yarn speed. However, in such a case, the cylinder is often actually being pulled by the yarn, and the drive is then worse than useless, interfering rather than helping.

While we are on the subject of cylinders, it would seem appropriate to mention safety and safety devices. Very few operators ever stop to think of the terrific pressure which is being exerted against the copper or stainless steel shells of the large five- and seven-foot cylinders. A seven-foot standard slasher cylinder has a surface of about 16,000 square inches, so that when it is holding steam at 12 pounds per square inch, there is a total pressure of nearly 100 tons on the shell. As these shells are usually rather thin, to aid in heat transfer, we are usually close to the safe limit at around ten to fifteen pounds. Older slashers with worn, corroded, and strained shells should operate at

This wrecked hulk was once an 84-inch slasher cylinder before failure of the shell plate resulted in an explosion which left this.

Courtesy Mutual Boiler and Insurance Co.



if you make any of these products—or sell to any of these industries...

- Automotive Seat Cushioning
- Automotive Side Panelling
- Baling Paper
- Body Armor
- Braided Hose
- Cargo Tie-Down Webbing
- Coated Fabrics
- Collapsible Storage & Transportation Tanks
- Conveyor Belts
- Cotton Combination Ducks
- Cure Wrap Tapes
- Cushioning Material
- Dense Non-Woven Fabrics
- Diaphragms
- Dictating Machine Cords
- Electrical Blanket Tinsel Conductors
- Electrical Cable Filler
- Electrical Cable Wrap Fabrics & Tapes
- Electrical Coil Insulation
- Electrical Shaver Cords
- Electrical Typing & Lacing Cords
- Electrical Wire Covering
- Fire Hose
- Fish Nets
- Flare Parachute Fabrics
- Gummed Paper Packaging Tape
- Hearing Aid Cords
- High Pressure Bandages
- Household Deodorant Wicks
- Inflatable Dunnage Bags
- Inflatable Structures
- Industrial Batting
- Industrial Felts
- Knitted Automotive Radiator Hose
- Knitted Garden Hose
- Low Stretch Tent Structure Webbing
- Oil Filters
- Oil Suction & Discharge Hose
- Paint Rollers
- Plastic Surfacing
- Ponchos
- Power Transmission Belts
- Pressure Sensitive Tape
- Sand Bags
- Spindle Tape
- Telephone Cords
- Varnished Electrical Tapes
- V-Belts
- Venetian Blind Tape
- Vinyl Coated Clothesline
- Vinyl Laminated Protective Covering Fabrics
- Water Filter Cartridges
- Webbings
- Wrapped Hose

Celanese fibers and Celanese knowledge can prove invaluable to you

These are the names that can form the products of the future: Acetate, Arnel Triacetate, Fortisan-36 rayon, and Celacloud Acetate—Celanese fibers for industry. They're engineered to do many jobs better—at lesser prices.

We offer not only Celanese fibers but Celanese skills—from fabric development in our plants to technical assistance in yours.

Let us show you how rewardingly Celanese fibers can help your future too. Call your Celanese representative now!

Celanese Corporation of America, Sales Development Department, Textile Division, Charlotte, North Carolina. Celanese®

District Sales Offices

180 Madison Ave.
New York 16, N. Y.

Room 10-141 Merchandise Mart, Chicago 54, Illinois

P. O. Box 1414
Charlotte 1, N. C.

200 Boylston St.
Chestnut Hill 67, Mass.

819 Santee St., Los Angeles, California

Export

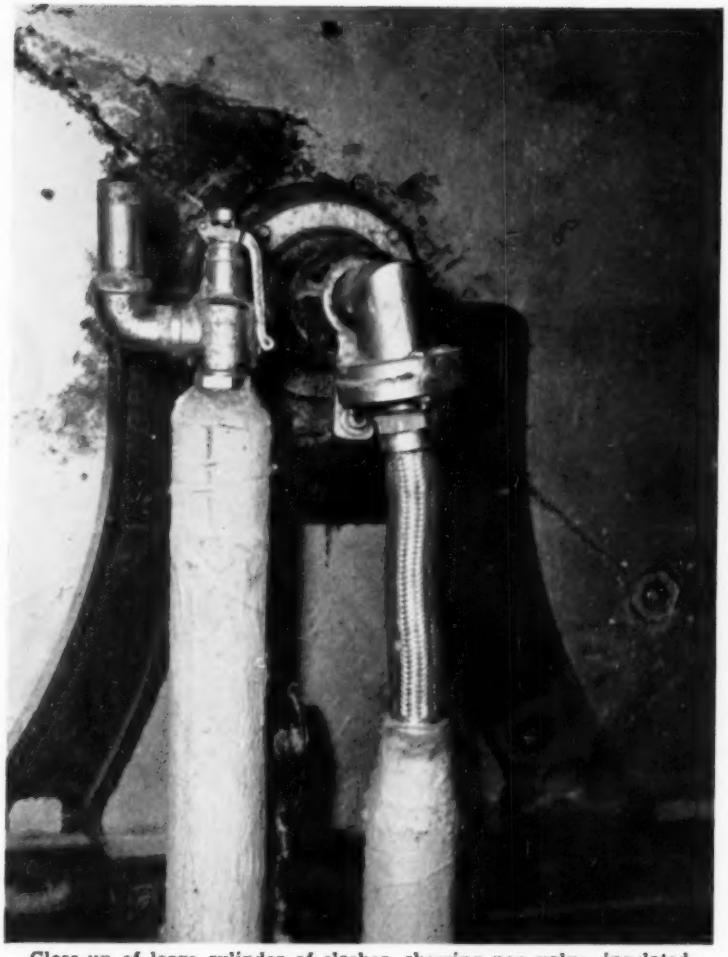
Amcel Co., Inc. and Pan Amcel Co., Inc.
180 Madison Ave., New York 16, N. Y.

In Canada

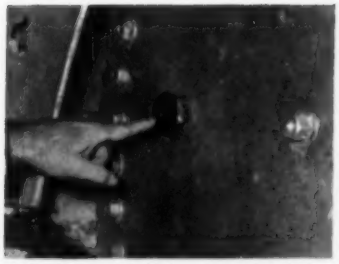
Chemcell, Canadian Chemical & Cellulose Co., Ltd.
2035 Guy St. Montreal

Celanese CONTEMPORARY FIBERS

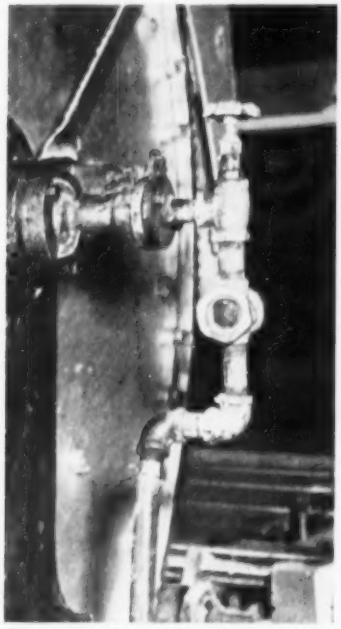
ARNEL® TRIACETATE • FORTISAN®-36 RAYON • CELACLOUD t.m. ACETATE • VISCOSE • RAYON



Close-up of large cylinder of slasher, showing pop valve, insulated steam lines, flexible hose, and revolving joint. Note the vacuum release valve at lower right.



A badly corroded vacuum release valve may stick shut and cause a weak cylinder to collapse. Check them periodically.



The use of a sight glass on the condensate line from the cylinder is an additional safety factor, enabling the operator to determine that the condensate removal system is functioning properly.

lower pressures.

Some of these old shells have been known to explode with much resultant damage to property and personnel. When each additional pound of steam pressure puts another eight tons of load on these thin shells, it is obvious that care must be taken to see that the shells themselves and the safety valves are in good condition.

Pop safety valves are to be recommended rather than lever-and-weight valves, as they are less amenable to tampering. They should be checked daily to be certain they are operating properly. Furthermore, periodic inspections of the shell of the cylinder from the inside should be undertaken, to be certain that no weak spots are developing through corrosion.

Reducing valves on the steam lines to the cylinder should also be periodically checked and should be replaced when they become corroded and worn.

Another point to look out for, is to be certain that the steam valves do not leak during a shut-down period.

Proper operation of the slasher has as much to do with the safety of working with these large cylinders as does the condition of the equipment. It is recommended that the cylinders be heated gradually by introducing one pound of steam for fifteen or twenty minutes before starting up. Sudden heating and cooling greatly increases the stress on the cylinder shell. If there is much condensate in the cylinder, the bottom of the cylinder will be cool while the top is hot, unless time is allowed for heating the condensate as well. When the cylinder starts turning, the cold part of the shell will be suddenly heated, and the cold water will cool off the hot part, increasing the strains on the shell.

There is a danger to the cylinder itself from "implosion" as well as explosion. Normally, the cylinders are equipped with vacuum release valves, so that when the steam condenses on cooling, air may enter the cylinder and prevent formation of a complete vacuum. If these valves become badly corroded they may stick shut, and a weak shell might then collapse, with a resultant total wreckage of the cylinder. This would not endanger personnel, but it has been known

Would an up-to-date Bibliography on Warp Sizing be of help to you?

If your answer to this question is yes, write to The Editors of "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga., and say so. The bibliography will be published upon completion of this series of articles if enough readers request it.

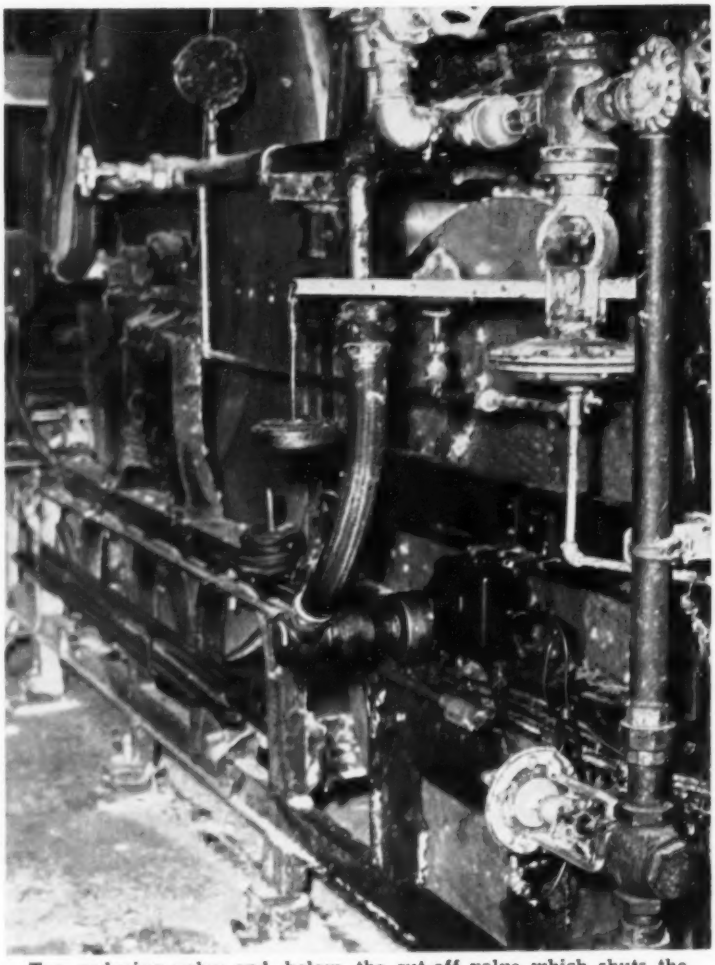
THE EDITORS

to happen, and would be an expensive accident. These relief valves should therefore be also periodically checked.

At least one slasher manufacturer has come out recently with large cylinders designed for higher pressure—22 psi for seven-foot cylinders and 35 psi for the five-foot cylinders. The most recent "high-speed slashers" are designed to use four of the high-pressure five-foot cylinders. However, almost all slashers presently in use are of the lower-pressure variety, and the proper precautions must be taken with them. Of course, these precautions must be taken even with high-pressure systems, except at higher levels of pressure.

From the point of view of proper operation of the drying cylinders, the condensate removal system should also be periodically checked. If a siphon system is used, the siphon pipes should be checked to be sure they are all tight and not clogged by rust. In the bucket system, the pipes should be checked and the buckets themselves must be firmly in place.

A small amount of condensate in the cylinder will not interfere with its operation, but any large quantity will interfere with the heat transfer simply by being in the way of the steam, and if there are quite large quantities, the condensate may cool off the cylinder surface, causing a loss of efficiency. Uneven surface heating often accompanies poorly operating condensate removal systems.



Top, reducing valve and, below, the cut-off valve which shuts the steam off when the slasher is stopped.

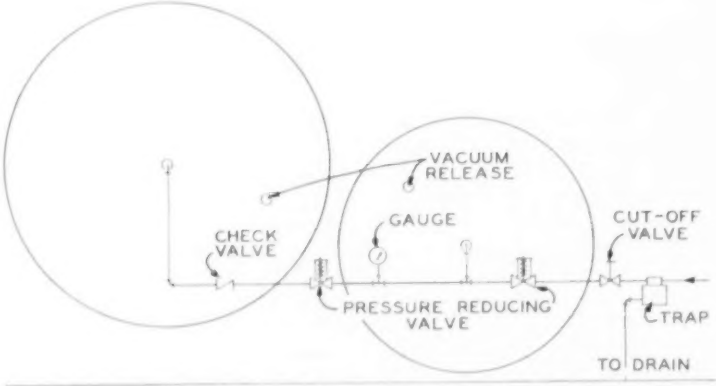
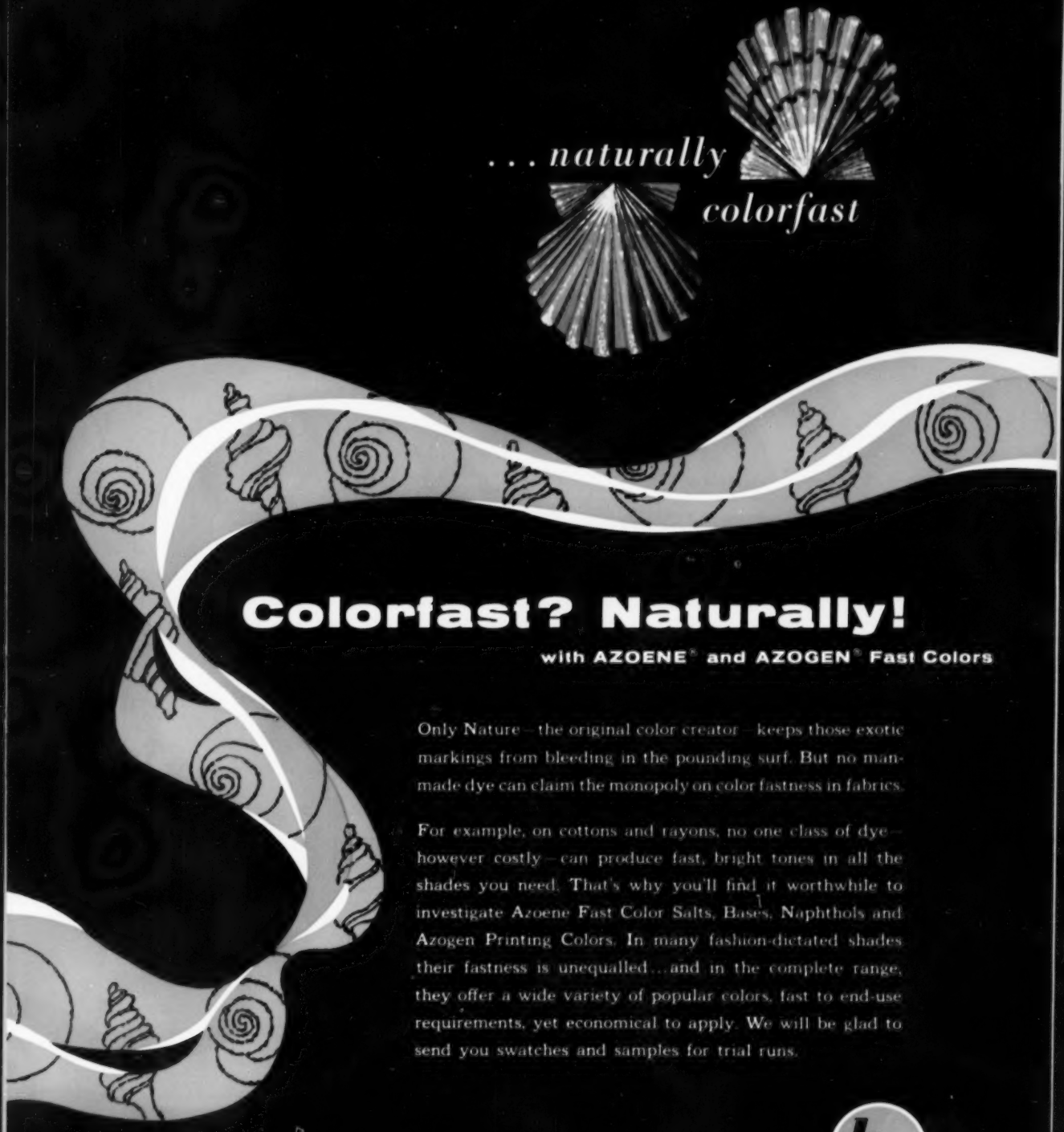


Diagram of steam line to drying cylinders showing types of valves, gauges, and traps used.

(Article 18, to be published in the October issue, deals with anti-stick rolls, the different kinds of slasher hoods available, multi-cylinder and hot-air drying, cooling fans, split rods, drag and measuring rolls.—The Editors)



. . . naturally colorfast

Colorfast? Naturally!

with AZOENE® and AZOGEN® Fast Colors

Only Nature—the original color creator—keeps those exotic markings from bleeding in the pounding surf. But no man-made dye can claim the monopoly on color fastness in fabrics.

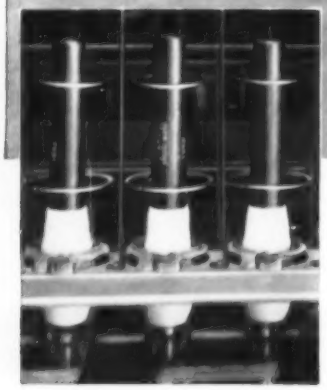
For example, on cottons and rayons, no one class of dye—however costly—can produce fast, bright tones in all the shades you need. That's why you'll find it worthwhile to investigate Azoene Fast Color Salts, Bases, Naphthols and Azogen Printing Colors. In many fashion-dictated shades their fastness is unequalled...and in the complete range, they offer a wide variety of popular colors, fast to end-use requirements, yet economical to apply. We will be glad to send you swatches and samples for trial runs.

bu ALLIANCE

BLACKMAN-UHLER CO., SPARTANBURG, S. C.
ALLIANCE COLOR & CHEMICAL CO., NEWARK, N. J.
DIVISIONS OF THE ANDOVER COMPANY

STOCKS AT: CHATTANOOGA, TENN., GREENSBORO, N. C., CHARLOTTE, N. C., COLUMBUS, GA., PROVIDENCE, R. I.

DELAWARE MILLS



Says Mr. William C. Appleton, President of Delaware Mills, Inc., "We are well satisfied with our HERR Conical Rings both on spinning and twisting."

Herr Conical Rings are used on these new Saco-Lowell GWALTNEY Spinning Frames. They are also used on Delaware Mills — Universal Winding Company 10B Twisters.

The HERR Conical Ring provides ideal conditions for the spinning or twisting of any yarn.

Produce High Bulk Orlon at Increased Speeds and with Improved Quality by Using ....

HERR CONICAL RINGS

Equip with HERR Conical Rings and begin to enjoy these profit making features. You can speed up production, improve quality and lower costs with HERR Conical Rings. You'll gain too, many other advantages. They stop yarn breakage, permit heavier doffs, produce smoother yarns and reduce fly. You'll enjoy cleaner yarn because oil is not thrown off. Frames and room floors stay cleaner. Travelers last longer because oil is carried in capillaries to ring surfaces. Maximum spindle speeds are achieved.

Learn more about these wonder rings. Write today for descriptive literature.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON AND BLENDED YARNS OF ALL TYPES

HERR MANUFACTURING CO., INC.

310 Franklin St., Buffalo, N. Y.

Knitting Section

When a Change Becomes Necessary

TRANSGO

SPECIAL FORMULA

TRANSFER REMOVER

Regardless of the type of transfer—printed, embossed, heavily pigmented or so-called "permanent" type—TRANSGO will remove it safely, quickly and without effect to the material.

TRANSGO is also used in conjunction with scouring agents to remove excess knitting oils, particularly hard-to-remove mineral oil.

For complete details on TRANSGO, and for help with all your finishing problems, call or write Fancourt today.

W. F. FANCOURT CO.

519 SOUTH DELAWARE AVE.
PHILADELPHIA 47, PA.

SOLVING FINISHING PROBLEMS SINCE 1904

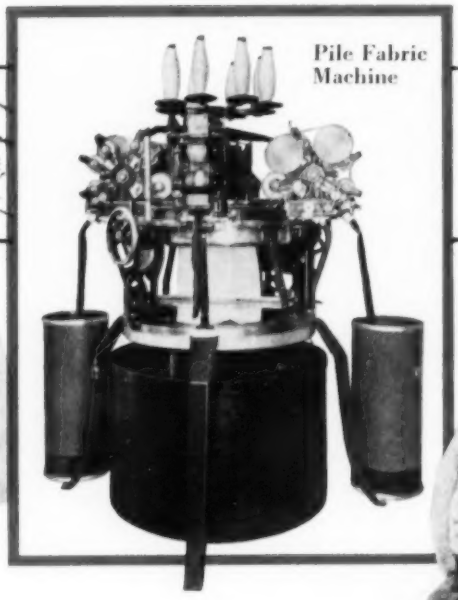
SOUTHERN OFFICE—846 S. MAIN ST., BURLINGTON, N. C.
CANADIAN OFFICE—CHEMTEX PRODUCTS, LTD.
49 DENSLEY AVE., TORONTO 15, ONT.

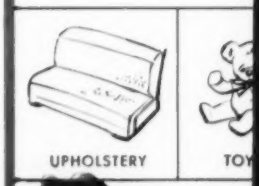
"Hi-Pile" ... the most versatile fabric in the knitting field today.

With many markets yet to be explored, this fur-like fabric is now used for high fashioned outerwear and a wide range of consumer products.

Fabrics composed of natural, synthetic or a combination of fibres can be produced on the Wildman Jacquard "Hi-Pile" knitter.

Wider markets ... greater product flexibility ... make the Wildman Jacquard "Hi-Pile" knitter a sound investment in future mill profits.





Leading Manufacturers of Quality Knitting Machinery

WILDMAN JACQUARD

For complete information on this or other Wildman Jacquard knitting machines write today:

WILDMAN JACQUARD CO., 1210 Stanbridge Street, Norristown, Pennsylvania
A subsidiary of Draper Corporation, Hopedale, Mass.

What caused this defect?

You'll find the answer here, as well as a simple remedy for it

by Winston Shewmake
Exclusive

WEAR at the pivot and point on an auxiliary yarn change lever operating lever extension will render the part practically useless on Banner solid color overplaid knitting machines. Wear at the point of the extension (see Fig. 1) can be corrected by welding a new point of some hard welding substance, and this may be repeated as often as the point wears away. However, the entire unit must be kept rigid vertically, as shown in Fig. 1, and must not have slack vertically as is illustrated in Fig. 2.

Horizontal movement must be free about the pivot screw while vertical movement is prevented. Continued and prolonged use of the parts will invariably cause vertical movement, and the parts must be discarded and a new unit installed at considerable cost in material and labor.

At the time these parts are ready to be discarded, new and virtually endless life can be restored to them by placing a simple steel wire or "stiff-knee" between the yarn change lever and the yarn change lever extension.

This is accomplished by drilling a No. 32 hole ¼" deep into the lever and into the extension, as shown in Fig. 3. Then fit and insert a 1/16" diameter steel wire into these holes. Replace the pivot screw, and the completed unit will appear as shown in Fig. 4.

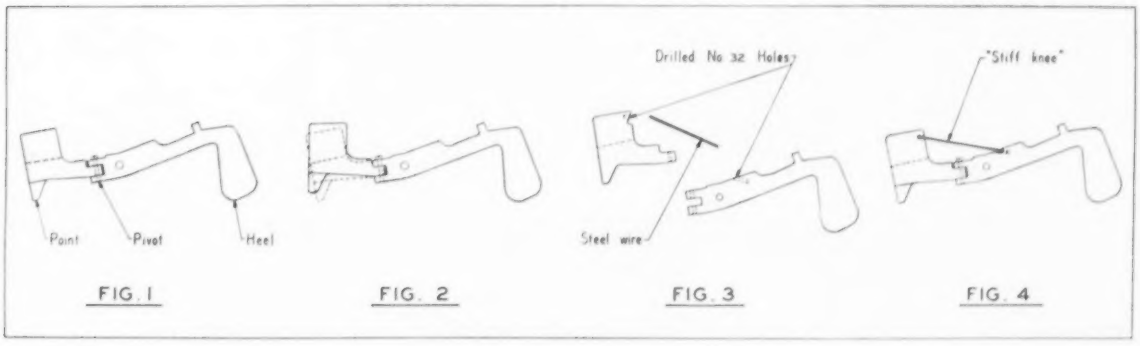


FIG. 1 FIG. 2 FIG. 3 FIG. 4

BESIDE YOURSELF over needle problems? You needn't be —when you can get top-quality needles for knitting, sewing, felting or tufting from . . .

THE TORRINGTON COMPANY

Torrington, Conn., U.S.A. Branches in New York, Philadelphia, Boston, Chicago, Greensboro, St. Louis. Pacific Coast Representative: E. G. Paules, Los Angeles

Management of South Carolina full-fashioned hosiery mill finds that a

Simple spring saves time and hose

Staff prepared

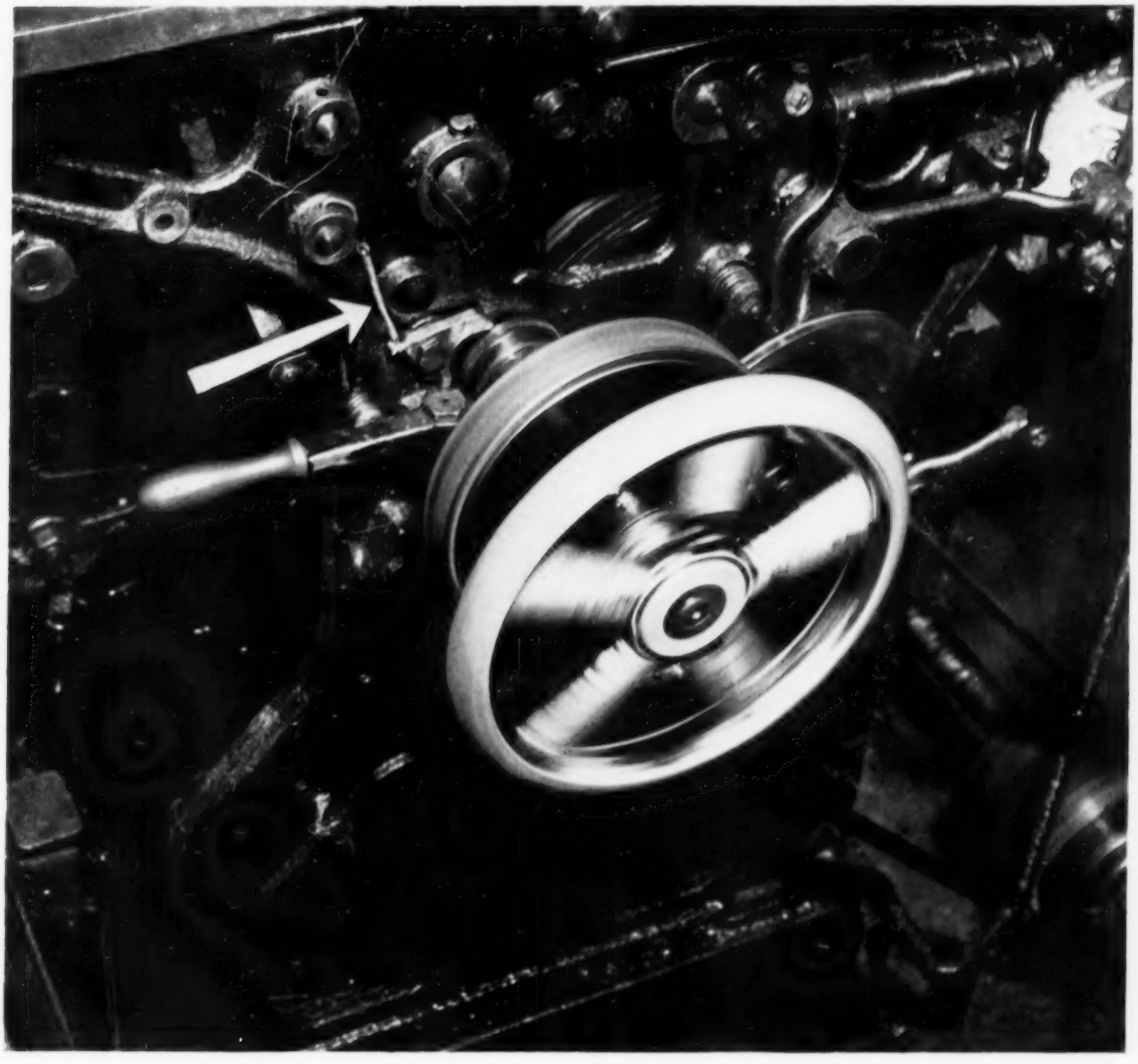
Exclusive

ON Wildman single-unit, single-section, full-fashioned machines, a spring on the stop motion finger for the clutch keeps the machine from rolling in reverse when it stops automatically upon completion of the welt or stocking. If the machine rolls in reverse it is thrown out of time and must be reset.

The clutch stop finger was already in place, but no spring held it there. Though the addition of the spring is a simple improvement, it saves about one hour a day usually wasted in resetting the machines at Chesterfield Hosiery Mill, Chesterfield, S. C., where 60 of these machines are in operation. The waste involved amounts to about a dozen stockings each day.

Before the addition of the spring, the light stop finger often flew up and hung in the open position (resulting from a sudden motion of the machine); and when this happened, the machine got out of time and remained out of production until the fixer could reset the timing.

Spring (arrow) added to clutch stop finger saves expensive waste and lost time on single-unit, single-section machines.



IMPORTANT ANNOUNCEMENT!

from the Man of Many Talents

FLUFdyed
TRADE MARK

A New, Exclusive Method of Dyeing Hi-Bulk Orlon* Yarns

Franklin's FLUFDYED procedure overcomes the objections found with previous methods of yarn dyeing Hi-Bulk Orlon.

Because the yarn is fully bulked when dyed, the following advantages are realized:

KNIT TO SIZE — Garments can be knitted to size, thus eliminating size variations which take place when dyeing occurs after knitting.

MINIMIZED FINISHING — The necessity of additional tumbling after knitting is eliminated and only steaming is required in order to achieve a soft hand.

PATTERNS AND STRIPES — The field is open for multi-colored style creations without the necessity of long deliveries from spinner to knitter.

Ask "the man of many talents" — your Franklin Process Representative — about FLUFDYED Hi-Bulk Orlon yarns. Tell him your requirements. He'll be glad to make recommendations.

*Dupont's Acrylic Fibre

Franklin Process

Yarn Merchants & Largest Package Dyers in the World

Providence • Philadelphia • Greenville

Chattanooga • Fingerville, S. C.

New York office — 280 Madison Avenue

How to simplify stitch adjustment

on older Komet and Links and Links hosiery machines

by K. O. Metz

Exclusive

HOSIERY MILLS utilizing the Komet (#12) and Links and Links (#34) machines are reaping the following benefits by replacing the conventional three-row stitch control mechanism with a six-row stitch control which is available from the manufacturer of these circular knitters:

1. Stitch adjustment required when sizing or changing from one kind of yarn to another is much more easily accomplished. Now there is only one cam to adjust on each row of the quality drum. With the three-row stitch control device one row was used to control stitches during heel and toe knitting, one for leg and foot knitting, and one for frame stitches in the 1 x 1 top. When other features such as loose course for looping or welt knitting were desired, they could only be obtained by installing independently adjustable cams on the same three rows.

2. Higher production is attained because less machine downtime is required for stitch adjustment. With the three-row control considerable production was lost while waiting for the quality drum to rotate until the cams were in position for adjustment. No longer is this necessary.

How to Install Six-Row Control. A ¼" hand-type electric drill, two drill bits (#29 and #33), two taps (8-32 and 6-32), and a screwdriver are the only tools needed to put the six-row stitch control on the knitting machine. Time required is very little. Just follow carefully the instructions. Here is the way to proceed:

Remove the present stitch regulating lever and install the new stitch regulating lever (see Figure 1). Install new tension cam guide and stop by measuring down ¼" from top of front edge of quality finger bracket to center of top screw hole. Spot holes and drill with a #29 drill and tap with an 8-32 tap for screws to hold it on.

Now face the machine and remove the first three present quality fingers on the right by pulling out the quality pin. Then install the six new quality fingers as shown in Fig. 1.

Remove all present cams on rows 4, 5, and 6 of the quality drum. Install the drill template furnished with the attachment by locating it on Row 4 in relation to present cams on Rows 7, 8, and 9. Drill one hole with a #33 drill and tap with a 6-32 tap as shown in Fig. 2. This new hole is for installation of the first new cam. Each succeeding new cam is added by butting it against the preceding one as shown in Fig. 3, using the cam itself as a template to spot the holes. Drill with a #33 drill and tap with a 6-32 tap.

Fig. 1

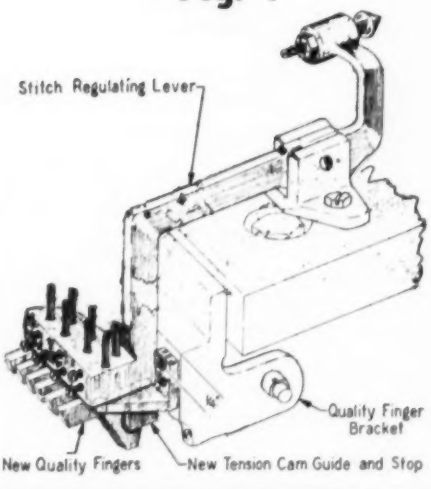


Fig. 2

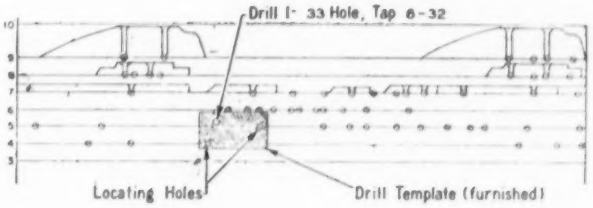
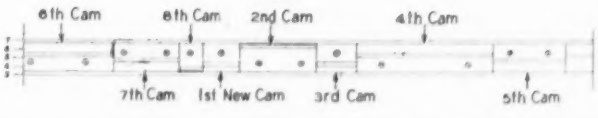
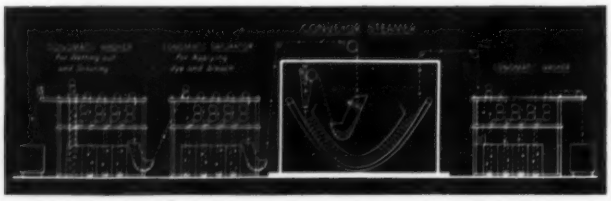
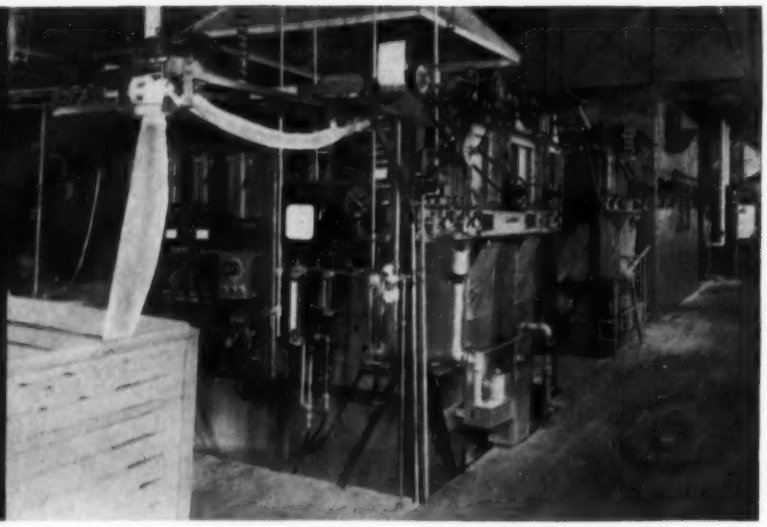


Fig. 3





Another PROCTOR continuous bleach range at work for P. H. Hanes



The second Proctor Continuous Bleach Range —recently installed at P. H. Hanes Knitting Company of Winston-Salem, N.C.

This Proctor Continuous Bleach Range was put into operation at the P. H. Hanes Knitting Company of Winston-Salem, N.C., early this year. The Hanes management was so impressed by the outstanding performance of their first Proctor Range that they turned immediately to Proctor when additional capacity was needed.

Like so many other textile manufacturers, Hanes relies on the name Proctor, for it means dependability, economy and complete processing satisfaction. They know that Proctor equipment means more opportunity for profit.

- **Re-runs eliminated**
- **Operating speeds up to 150 yards per minute**
- **Cost savings up to $17.00 per 1000 pounds bleached**
- **Amortized in one year**
- **Eliminates sorting of batches for cutting room**
- **Insures cloth of excellent hand, whiteness, uniformity, shrinkage and absorbency**
- **Tremendous savings in water consumption**
- **Saves space—easily arranged to suit your plant.**

Proctor

PROCTOR & SCHWARTZ, Inc.

PHILADELPHIA 20, PA.

Manufacturers of Textile Machinery and Industrial Drying Equipment

10 dozen full-fashioned Ban-Lon sweaters are being made in an 8-hour day with the eight single-head Wildman-Jacquard machines pictured here at Shelley Knitting Mills.

One female operative tends the eight machines. Here she completes the transfer operation on one of the sleeve machines.

Mill test shows that, compared to full-fashioned sweater production obtained with a multiple head machine, new single-head units make it possible to

UP F-F SWEATER OUTPUT 1/3

AFTER MORE than six months of testing single-head full-fashioned sweater knitting machines, John Ashe, president of Shelley Knitting Mills Co., Inc., Philadelphia manufacturer of ladies' and misses' sweaters, reported the results.

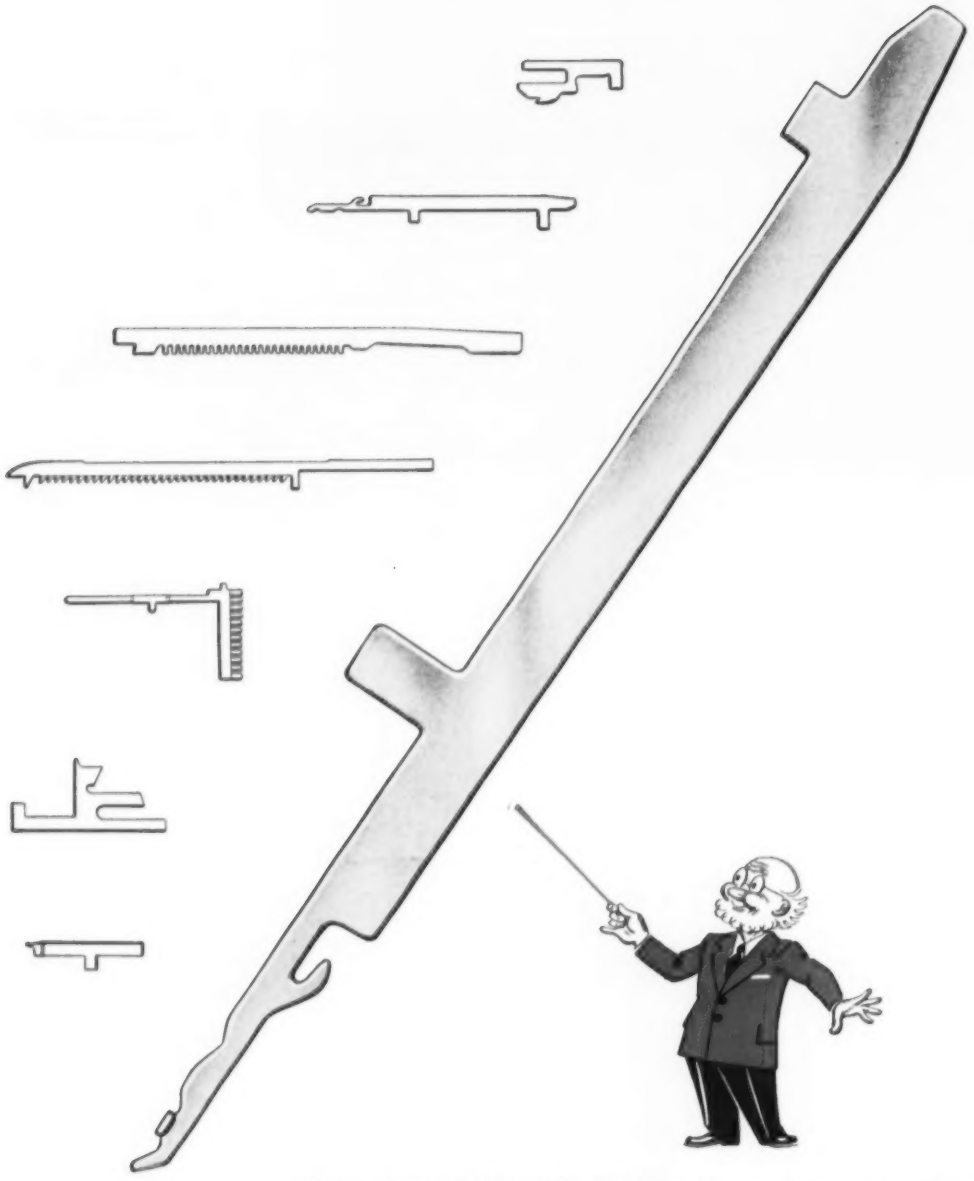
Versatility, speed, and ease of operation were advantages Mr. Ashe cited for the machines which had been used to make from Ban-Lon yarn the components for slip-on and cardigan full-fashioned sweaters for women.

A battery of eight of the new machines—five body machines and three sleevers—has successfully undergone the most severe production tests in the Shelley plant, Mr. Ashe said. Because of the good results obtained, his company plans to introduce this fall a line of full-fashioned sweaters which will include both dressmaker and classic stylings.

Tests proved that production of sweaters on the eight single-head machines, as compared to a 12-section multiple head machine, is at least one-third greater, Mr. Ashe reported. Shelley has been producing 10 dozen sweaters in an eight-hour day with the machines.

Other benefits to be derived by using the machines, as shown in actual performance at the plant, are:

(1) Ability to run a number of sizes on a battery of single-head

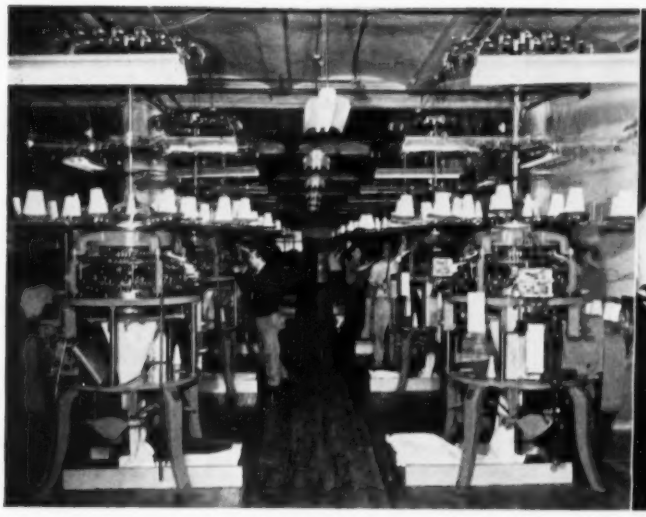


Sinkers, sliders, dividers, jacks, knock-over bits — whatever your flat stock requirements may be — Textile Machine Works makes these important tools of knitting, using electronic controls to check the accuracy of each dimension. You can actually see the difference in knitting results. Arrow Flat Stock is uniform in size, contour, temper, lasting quality. And the velvet smooth finish reflects continuing pride in workmanship. Made for all types of machines with the same care as Textile Spring-Beard Needles, Arrow Latch Needles, and Textile Leaded Parts. Let us quote on your requirements.

Builders of:
The "Reading" CK-A Circular Knitting Machine
The "Reading" Tricot Machine
The "Reading 100" Full-Fashioned Knitting Machine
The "Reading" Full-Fashioned Outerwear Machine
The "Reading" Braiding Machine
Textile Spring-Beard Needles
Arrow Latch Needles

Arrow FLAT STOCK FOR KNITTING

Wire Products Division
TEXTILE MACHINE WORKS • READING, PENNA.
In the South: Asheboro, N. C. In the North: Manchester, N. H.
Builders of Textile Machinery Since 1900



View of another portion of the knitting department of Shelley Knitting Mills, showing several Wildman-Jacquard fine-cut circular knitting machines for producing patterned fabrics. Full-fashioned machines pictured at the top of page 209 are located to the left and cannot be seen in this photo. Note the oak flooring over concrete which provides greater comfort for plant personnel, is easy to maintain, and enhances the appearance of the mill. One of the "Pantogram" illuminated tables designed by Mr. Ashe for examining knit goods is being used in the photo at the right. Strong light behind the glass top of the table quickly reveals flaws to the inspector.

machines located side by side.

(2) Less downtime and a reduction in maintenance costs, because when a single head is stopped only one is down.

(3) During the transfer operation on any one machine, other machines continue to operate.

(4) Relatively inexperienced operators can be taught to handle the machines—transferring is easy to do since it is not necessary to line up topping bars.

(5) One female operative tends the eight 21-gauge machines—the five body machines are equipped with 30″ heads and run at a speed of 65 courses per minute; the three sleevers have 18″ heads and run at 85 courses per minute.

(6) Fronts and backs can be produced on the same machine, either alternately front and back or on a batch basis. (Shelley uses the alternate front and back method for highest uniformity.)

(7) Because it weighs only about 1200 pounds, the single-head knitter can readily be relocated by plant personnel without excessive loss of time and risk of damage to the machinery. No special flooring or floor reinforcement is necessary.

Hard Goods Production Methods Used. Some techniques which are utilized in the production of radio and television apparatus and aircraft engines are being successfully applied in the Shelley plant for the profitable manufacture of knit goods, an article in the June, 1957, issue of *Fortune* indicates.

According to the report, Mr. Ashe left his production management position in the hard goods field in 1949 to enter the knit goods manufacturing industry. He worked for other mill owners until May of 1954 when he founded his own company.

In the beginning there were four knitting machines and 25 employees. Today there are over 1,000 knitting and sewing machines and 450 employees. In the last three years, the article states, Mr. Ashe "has set a fast pace; as president and treasurer. . . . he grossed $300,000 the first year, $900,000 the second, and over $3 million the third."

Here are factors which, in the opinion of Mr. Ashe, contribute to the profitable operation of his integrated knit goods business:

(1) Willingness to spend money for research—$200,000 last year.

(2) Willingness to experiment with new yarns and machinery.

(3) Placing new products on the market before consumers tire of and stop buying old styles.

(4) Use of a psychologist in the hiring of key personnel, and making provision for these employees to buy stock in the company.

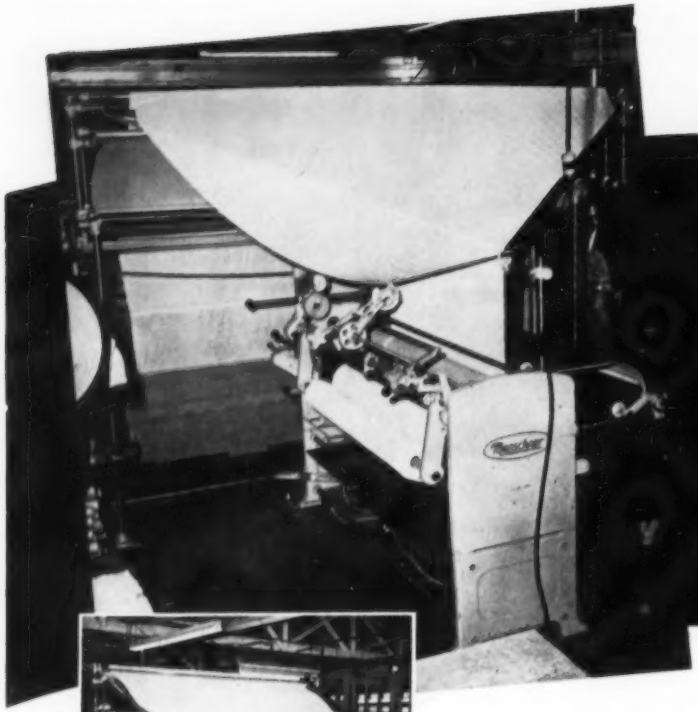
New Plant. An affiliate of Shelley Knitting Mills, Shelley Sportswear, Inc., produces underwear, hunting and ski clothes, men's swimming trunks, car coats, walking shorts, and men's knitted sports shirts. Until recently the two companies were located in separate factory buildings in Philadelphia. Now they are in production under the same roof in a new 100,000 sq ft plant at 1215 Glenwood Avenue in the same city.

"The move marks a 30 per cent expansion for the firm and is part of a general expansion program," Mr. Ashe explained. "In our new plant we have centralized all our activities on one floor, providing the additional space needed for our expanding production, and facilities for pilot testing and developing new ideas, and streamlined our entire operation for maximum efficiency," he said.

The new plant is divided into five major areas as follows:

(1) Offices, reception and conference rooms, and research laboratories and home laundry—5,000 sq ft.

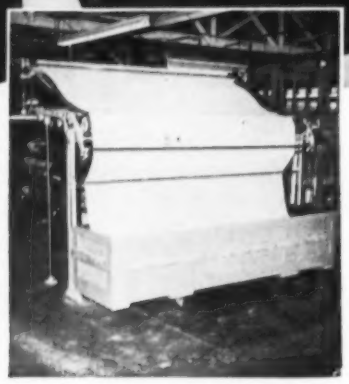
(2) Shelley Knitting Mills sweater production area which is laid out in a "progressive" flow system from knitting through final



New

HIGH-SPEED,

Doubling, Measuring and Rolling Machine



ALSO AVAILABLE is an attachment (Automatic Guider for Self Doubling, Model S.D. IV) which aligns selvages automatically.

added to REINER'S EXPANDING LINE

It is with pride that Reiner offers this efficient, economical producer—ideally suited for both woven or knitted cloth. Available in various widths up to 120" for open goods (finished goods are doubled and rolled to 60" width). Larger widths can be furnished upon request.

SPECIAL FEATURES:

- 3-Speed drive permits large range of speeds for adaptability to various fabrics.
- Goods can be handled from either folded condition, loose scray or from rolls.
- Machine gives unmatched performance and accuracy even at high speeds.
- No experienced help required for operation of unit.
- Machine prints yardage after each run—insuring accuracy, and eliminating chance for error.

Write for complete details and interesting case history regarding actual mill use of this machine.

THE REINER LINE:

Tricot Machines—Simplex (Double Knit) Machines—Raschel Machines—Tulle Machines—All types of Warpers, Beamers and Creels—75 Gauge (4 section) Full-Fashioned Hosiery Machines—Full-Fashioned Sweater Machines—Schaffhouse Flat Power Knitting Machines—Automatic Schiffli Embroidery Machines (10 and 15 yds.)—Multihead Automatic Jacquard Embroidery Machines—Automatic Bobbin Winding Machines (for stitching and quilting)—Jacquard Pattern Repeating Machines—Reiner-Famatex Tenters—Rabo Permanent Pleating Machines—Menschner Gauged, Doubling, Measuring and Rolling Machines—Menschner Cloth Control and Marking Device—Ready Spare Parts Service for all Reiner Machines.

ROBERT REINER INCORPORATED

10 MINUTES FROM TIMES SQUARE

Take Bus Nos. 61 or 67, from Platform No. 60, Port Authority Bus Terminal, 41st Street and 8th Avenue, New York City. Get off at Pleasant Avenue, Weehawken, New Jersey. From there turn left and walk through the underpass up to Gregory Avenue . . . TELEPHONE UNION 7-0502, 0503, 0504, and 0505. From New York City call LONGACRE 4-6882.

FOUNDED IN 1903 **550-564 GREGORY AVENUE, WEEHAWKEN, NEW JERSEY**

finishing—60,000 sq ft.

(3) Warehouse and shipping area for both of the companies—16,000 sq ft.

(4) Cafeteria for plant personnel with service provided by a caterer—2,000 sq ft.

(5) Shelley Sportswear production area which is equipped with single-table machines so that any section may be expanded or relocated in less than 30 minutes if the need exists—17,000 sq ft. A pilot plant and products development department, which is fully equipped with special machinery and testing apparatus and a large walk-in freezer box for testing effectiveness of outerwear under extremely cold conditions, occupies 5,000 sq ft of this space.

Mill Has Recently Developed Equipment. In addition to the single-head full-fashioned knitting machines mentioned previously, other equipment which was placed on the market a short time ago is being used in the Shelley plant. Among them are fine-cut circular knitting machines for producing patterned sweaters, color matching equipment, exact dimension pressing machines for producing true sweater sizes, and illuminated examining tables which were designed by Mr. Ashe to better control quality of knitted fabrics.

One trick which Shelley Knitting Mills' president John Ashe (left) learned while serving as production manager of a radio and television apparatus plant was to have a new model ready before the public tired of the old. "We're not going to give the public time to stop buying," he said. "We'll change styles and market new products before there's a chance for any slump to set in." Here Mr. Ashe talks over plans for the production and marketing of a new garment with Joseph Datlof, vice-president and general manager of Shelley Sportswear, Inc., an affiliate firm.

Why a good quality control program is a knitting room "must"

by Oliver Beckwith
Director Quality Control
William Carter Co.

Extract*

■ In the manufacture of knitted underwear and sleepwear the principal source of dollar losses from substandard quality and the principal reason for customer returns is defects in the knitted fabric. The operation of knitting, then, is the most profitable place to concentrate quality control and improvement efforts.

Quality control and quality improvement in knitting require quality control of the yarn used. A sound system for the acceptance or rejection of lots of yarn is necessary. Standards for the properties of yarn known to affect knitting must be established and test methods for determining these properties must be developed.

Inspection of rolls of knitted fabric must be standardized. Defects are defined and classified as: (1) holes arising from yarn, or yarn or machine interaction, (2) defects arising from the machine, such as broken needle, and (3) defects arising from yarn such as slubs, thin and heavy ends, etc. The presentation of inspection data must be done in such a way as to enable supervision to take effective corrective action or to show where research or development work must be undertaken. The setting up of quality standards and control charts is an effective means of doing this.

Some advantages of a sound quality control program in the knitting room are:

(1) Systematically shows knitting department supervision their quality performance; points out the fabrics where corrective action should be concentrated and pinpoints the sources of trouble.

(2) Enables quality improvement by the ability to rate suppliers of yarn in terms of the quality of fabric produced from their yarn; by eliminating poorest suppliers, the quality level is automatically improved.

(3) Enables quality improvement by showing the one best construction of yarn for a given construction of fabric.

(4) Enables the evaluation of quality performance by make of knitting machine; thus, when purchase of new machines must be undertaken there are factual data available for a decision as to the make to buy.

(5) Enables supervision to rank knitting machine operators in terms of quality performance and shows those requiring corrective help.

*From paper presented at a meeting of the American Association for Textile Technology, Inc.

Avondale Yarns

Sold through Comer-Avondale Mills, Inc. Headquarters: Sylacauga, Alabama

PRODUCERS OF QUALITY COMBED AND CARDED COTTON KNITTING YARNS

NEW "GROUP SERVICE PLAN" *now available to Scott Tester* owners*

Provides maintenance servicing at fixed low rate

By pre-arrangement under the Group Plan, a Scott service man will call to inspect, clean, calibrate and adjust your Scott Tester**, and also effect minor repairs, providing you with a work report and the Certificate of Calibration so often mandatory on government contracts.

Low group rate results from including your plant with others. Regular trips are made in areas shown. Contact the Scott plant in your area for details.

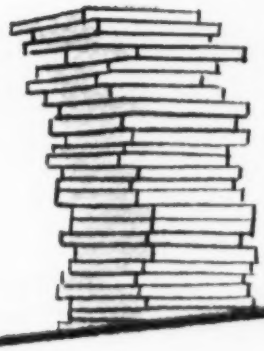
SPECIAL SERVICE NEEDS are handled on an individual basis to insure immediate service at any time.

*Trademark

**(Mooney Viscometers and RMA Cushion Testers are not serviced under Group Plan)

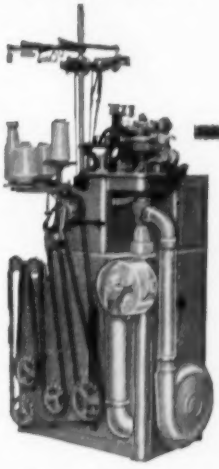
SCOTT TESTERS, INC.

60 Blackstone St., Providence, R. I.



Hosiery Buyers that KNOW—Go SEAMLESS

Seamless Mills that GROW—Go FIDELITY*



* The only electronically controlled circular knitting machine that offers

- Single or double feed operation
- 400 or 474 needles
- Automatic Tension Device
- Individual Motor Drive
- PLAIN—MESH—or S-T-R-E-T-C-H at the push of a button.

Keep growing in this booming seamless market . . . investigate the advantages of the amazing Fidelity "400" and "474".

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

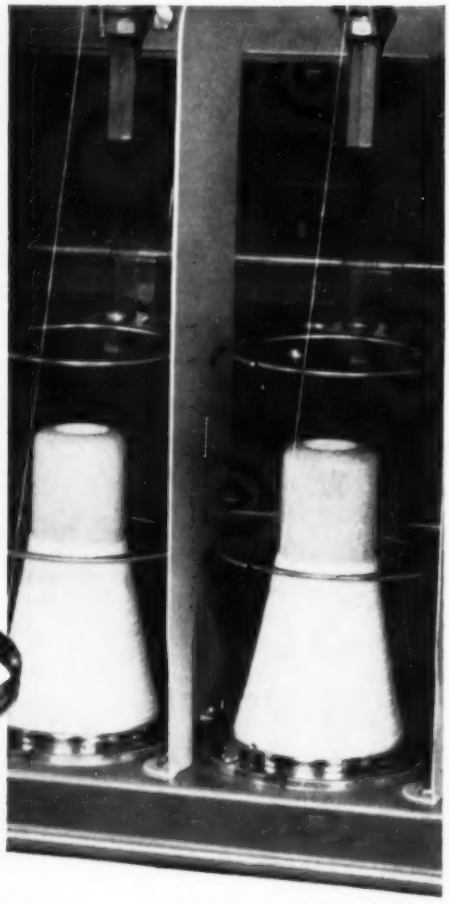
SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P.O. BOX 763, MT. AIRY, NORTH CAROLINA

Extend traveler life —
Reduce ends down per M.S.H.
Cut spinning room operating costs

Specify

SACO-LOWELL *ROBBINETTE**

TWISTING & SPINNING RINGS



SMOOTH AS OIL

HARD AS GLASS

DURABLE AS GRANITE

* A product of the Pawtucket Spinning Ring Company, subsidiary of Saco-Lowell Shops

Because Robbinette rings are manufactured to exacting Saco-Lowell standards you are assured of a high degree of circularity; uniformity of hardness and depth of case; and dimensional uniformity of flange and web.

Through increased production, top quality yarn, and longer traveler life, the installation of Robbinette Rings on your spinning and twisting machinery will result in a maximum return on the original investment — they actually pay for themselves.

Have an installation of these modern rings made in your mill and prove their superior operating characteristics for yourself.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD & SACO, MAINE, SANFORD, N.C., EASLEY, S.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

HOW OTHER MEN MANAGE

• Letters to Editor • Technical Discussion •
• Manufacturing Briefs • Kinks & Short Cuts • Comments from Readers •

Write to the Editors!

Readers are invited to make use of this section for further discussion of published articles, or for discussion of problems arising in the plant. Names will not be used without permission. Payment is made for practical articles or for letters containing manufacturing information.

Address: Editors "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga.

Stop trip lever plate wear on circular knitters

EDITOR TEXTILE INDUSTRIES:

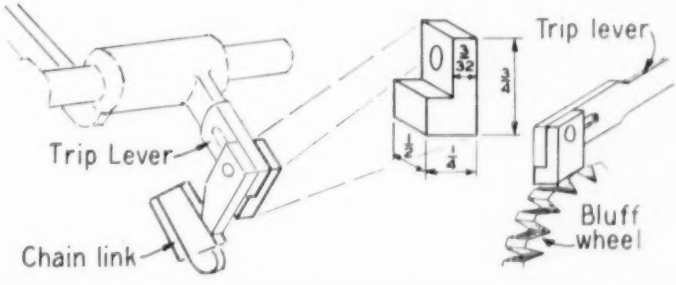
The knitting machine part shown here was designed by the writer years ago to save wear on the trip lever plate of Links & Links and Komet machines. Once installed, the device needs no further attention or adjustment. It rests on the bluff wheel.

The part, called the trip lever stop, saves one trip lever plate about every six months of three-shift five-day knitting operation. Since the plates cost about $1.00 each, the saving is considerable. The stop never wears out.

The materials for the trip lever stop cost about one dime; one can be made by hand and installed in less than an hour. This time is shortened considerably if they are made in quantity on a milling machine.

Many fixers do not realize that the plain chain links actually wear out the trip lever and plate, causing the main drum racking pawl to go out of action. When this happens trouble can come quickly.

One wrong main drum move anywhere during the cycle of making one complete sock will throw a main drum out of time. This, any Komet fixer knows, means labor—



NEW KINK CONTEST!

$100 will be awarded the winner

Send your entry now! This contest ends December 15, 1957

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance. The $100 award will be made as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, December 15, 1957.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

Send your contest entry to: The Editors TEXTILE INDUSTRIES, 806 Peachtree St., N. E. Atlanta 8, Georgia.

CH_2Cl_2

METHYLENE CHLORIDE

At a time when this broadly useful intermediate and raw material is often in short supply, your records should show that Stauffer has huge and growing facilities for the manufacture of Methylene Chloride.

The Stauffer plant at Louisville supplies Methylene Chloride in drums of 600 pounds net capacity . . . in tank trucks . . . in tank cars of 4000, 8000 and 10,000 gallons . . . and in barges. Drum shipments are also made from warehouse stocks at Chicago, Houston, Akron, Cleveland, Pittsburgh, Boston, San Francisco, Los Angeles, Portland, Ore., and Niagara Falls.

Stauffer Methylene Chloride meets the highest standards of purity.

Stauffer can also supply you with Carbon Bisulfide, Perchlorethylene, Trichlorethylene, Carbon Tetrachloride and Chloroform. A new brochure on Stauffer Chlorinated Solvents will shortly be ready for mailing. Kindly advise on your letterhead if you would care to have a copy.

stauffer means service

STAUFFER CHEMICAL COMPANY

380 Madison Avenue • New York 17, N. Y.

Prudential Plaza, Chicago 1, Illinois • 636 California Street, San Francisco 8, Calif.

Stauffer CHEMICALS SINCE 1885

taking off cam sections, replacing broken sliders, possibly some broken needles, some waste, and one hour or more of lost production. Tracing the trouble to a worn trip lever plate and replacing that member takes time too.

The trip lever stop eliminates 95% of the normal wear on the trip lever plate because the stop prevents the plate from riding on the plain chain links at any time. Only the lug or kick links come in contact with the plate. I have seen machines equipped with the trip lever stop run for 10 years without requiring a new trip lever plate.

The drawing illustrates the position assumed by the stop plate in reference to the trip lever stop. The stop is secured to the trip lever, and is long enough to lift the trip lever plate clear of the plain chain link.

If the bluff wheel is in use, the stop should be made of tool steel and hardened to take the wear. Otherwise the stop can be made of cold rolled steel.

When making the installation, grind the bottom of the stop where it rests on the bluff wheel to give the proper setting.

CONTRIBUTOR NO. 9029

Slashers—old vs. new

EDITOR TEXTILE INDUSTRIES:

Hoping that our experience in changing slashers and our resulting output from the new installation will be of assistance to someone, I am sending you a performance comparison between the 40-year-old machines and the present ones. There is a bonus plan involved.

The old equipment, with its old size boxes, blanket-covered squeeze rolls, and limited drying capacity delivered a maximum of 40 yards per minute. We used one slasher tender per machine, and included another man to prepare the size. All the personnel involved were on a bonus plan.

The men worked as a group, even though each man had his own slasher to operate. As a creel approached the run-out stage the men pooled their efforts to cut the standing time to a minimum. The full beams were readied. As the slasher was stopped the creel was cut out and the empty beams removed. The men who wheeled away the empty beams brought the full ones on the return trip. Seven such beams were usually set in within a period of some 20 minutes. The slashers required re-creeling each 13 hours of running. The section beams, of 26″ heads, held 30,000 yards of yarn.

The new slashers were installed about three years ago. They are now equipped with rubber-covered squeeze rolls, have new size boxes, and much higher drying capacities than the old ones.

Our first production figures showed an increase in drying rate to 75 ypm. Sometimes we were able to produce warps at a rate of 90 ypm. These figures were obtained before we changed the squeeze rolls from blanket covered ones to the present rubber-covered ones. With the rubber-covered rolls our production reached 100 ypm.

The warps produced at this high speed are better than the ones we made on the old slashers at 40 ypm. We now operate the machines 16 hours per day.

At present we plan to install some additional drying fans and to increase our drying rate to 125 ypm.

The present section beams are equipped with 40″ heads and hold 60,000 yards of 30s yarn. With the new drying speeds we can exhaust a creel of this capacity within 14 hours.

At present the men operating the new slashers are not on a bonus plan. Two men at a time join in the creel changing, which requires about 45 minutes; but we plan to install a bonus plan and by so doing increase the slasher output by approximately 15%. This will mean more money for the operators, also.

We ran the new slashers for a while with 26″ beams in the creels, but the creels ran only 7 hours at the advanced slashing speed.

CONTRIBUTOR NO. 9041
(Canada)

Which cutter would you use on nylon tow?

EDITOR TEXTILE INDUSTRIES:

What size cutter rolls are different mills using on the Pacific Converter to make rug stock from 15-denier nylon tow? We wish to know whether 4½″ rolls or 6″ rolls are preferred and why.

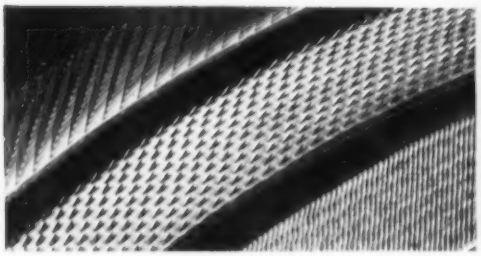
We spin on the modified worsted system and use the 4½″ roll with single variable cutting attachment. Our staple varies from 3″ to 7½″. If 6″ cutter roll is used with double variable cutting attachment, the staple ranges from 3″ to 9″, which requires less twist and produces a loftier yarn. These factors appear to effect an improvement in the rug yarn; however, we have not confirmed the expected results to date. We have had no experience with the 6″ cutter roll.

Our present facilities seem to indicate that the low edge on the staple graph is too short for our system of spinning. Also, we should like to have a discussion of the merits of different systems for spinning nylon rug yarns.

At present, we start with the Pacific Converter, then proceed with one pin drafting, gill box, another pin drafting, then modified worsted spinning.

CONTRIBUTOR NO. 8972

(If you can help this contributor with his problem, send your reply to us. All solutions will be paid for upon acceptance. No waiting.—The Editors)



CARDER'S CORNER by Ashworth

CARDERS!! The purpose of this page is to serve as an open forum each month. If you have problems which you would like to throw open for discussion or if you have further comments on problems already presented, write to CARDER'S CORNER, care of Textile Industries, 806 Peachtree Street, N. E., Atlanta 8, Georgia.

Volume I – Number 9

DO *YOU* KNOW THE ANSWERS TO THESE PROBLEMS?

In a recent survey we learned that there is a very lively interest in "CARDER'S CORNER". Here are a few of the many problems that readers would like to see discussed. We will give our views on these subjects as time and space permit, but your views, based on your own personal experience, would be equally desirable. If you want the other fellow to help you, you should help him. So let's hear from you. You don't have to write an English composition. Just outline the facts. We'll put them in readable form.

PROBLEM 1

How do you prevent hooked wire on card clothing?

PROBLEM 2

How do you prevent ragged selvages?

PROBLEM 3

How do you prevent snowballing on selvages?

PROBLEM 4

How do you prevent fly from blowing out at the sides of cards?

PROBLEM 5

Our feed roll clearer rod won't collect clearer waste, when carding rayon and acetate blends. What should we do?

PROBLEM 6

What is the proper oiling schedule for cards?

PROBLEM 7

What is a proper grinding schedule for cards?

PROBLEM 8

What is the theory on the use of metallic wire on worsted cards and how has the theory worked out in practice?

PROBLEM 9

What are the merits and demerits of metallic wire clothing? Where should it be used and where not used?

PROBLEM 10

Which is better — fancies or continuous strippers on cotton cards and when and why?

PROBLEM 11

What is the best practice when carding 15 denier viscose?

PROBLEM 12

How can you reduce neps when carding $1\frac{5}{32}$" El Paso comber cotton?

NOTE

When sending in your answers, state problem answered and give your name, title and business address. Your name will not be publicized unless you specifically request it.

ASHWORTH BROS., INC.

American Card Clothing Co. (Woolen Division)

Fall River*†‡ Philadelphia*†‡ Atlanta†‡
Greenville*†‡ Charlotte†‡ Dallas†‡ (Textile Supply Co.)
Los Angeles‡ (E. G. Paules)
*Factory †Repair Shop ‡Sales Office

PRODUCTS AND SERVICES

Clothing for Cotton, Wool, Worsted, Silk, Synthetic Fibre and Asbestos cards and for All Types of Napping Machinery. Brusher Clothing and Card Clothing for Special Purposes. Lickerin Wire and Garnet Wire. Sole Distributors for Platt's Metallic Wire. Lickerins and Topflats Reclothed. Flats Remilled. Flexible Bands Reground.

Ashworth PIONEERS IN CARD CLOTHING

3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 SALES OFFICES

Tube-and-water leveling system for spinning frames

EDITOR TEXTILE INDUSTRIES:

We use a liquid-filled plastic tube for leveling spinning frames. The process also has application in the building industry where difficult leveling jobs must be performed.

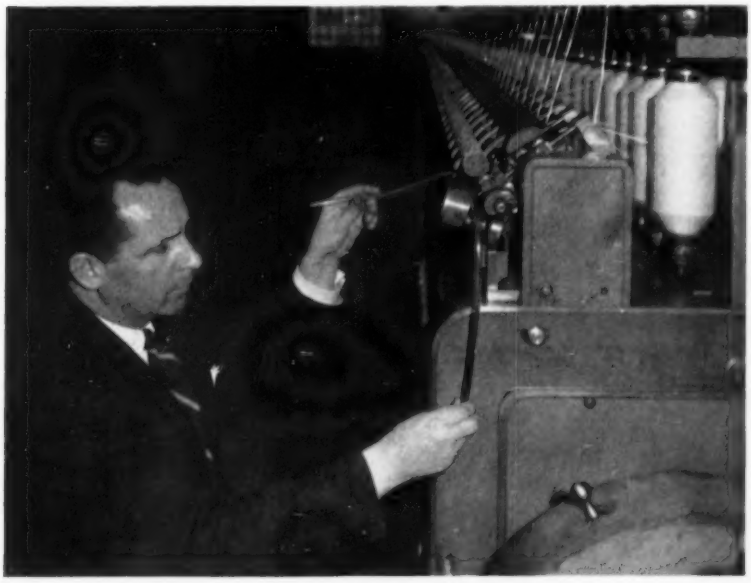
Since the liquid seeks its own level, the length of the tube used is immaterial as long as it is long enough to span the points being leveled. See top photograph.

This photograph shows a ring rail of a spinning frame being leveled. Two men perform the task while stationed at opposite ends of the frame. The picture, of course, is of a machine which already is erected.

When a new machine is being erected, one starts by erecting or setting the foot end of the machine. The gear end is then leveled with the foot end; and after that the rail is leveled. The system works well for the intermediate sections which must also agree with the elevations of the foot and gear ends.

It must be remembered that the ends of the tube should be open, and that there must be a margin of tube extending beyond the limits of the liquid column. See bottom photograph.

CONTRIBUTOR NO. 9033
(Portugal)

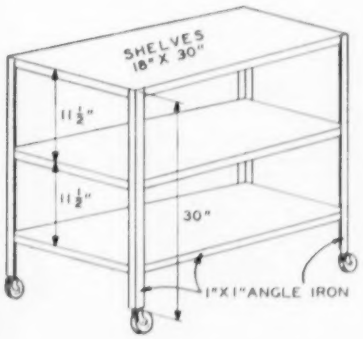


Above are shown two men as they check a ring rail for level. The length of pipe shown suggests one proportion of pipe-to-frame length which can be used conveniently. As in the bottom photo, a length of the pipe should project beyond the water column.

Handy top roll truck

EDITOR TEXTILE INDUSTRIES:

Before we built the truck shown here we had to look all over the spinning room, and sometimes the card room, to find a truck we could use to wheel a change of top rolls to the roller shop.



We built the truck to hold two boxes of top rolls. So, with each box holding up to 168 pairs of rolls, we can change two complete frames with each trip to the roller shop. The truck is designed to permit the fixers to pull or push it into the spinner's alley and work directly from the roll boxes.

CONTRIBUTOR NO. 9000

A WINNING MOVE

SMITH, DRUM & COMPANY now in the Turbo family of Textile Finishing Equipment

Now Turbo is your headquarters for the complete line of Smith-Drum dyeing and finishing machinery — manufacturing, sales and service. Headquarters, too, for research, development and even greater progress in the Smith-Drum machines of tomorrow. For at Turbo, Smith-Drum engineering and production will be able to deliver to Smith-Drum customers a broader, and more dynamic service than ever before.

TURBO

TURBO MACHINE COMPANY
Lansdale, Pa.
Turbo, Smith-Drum, Brewin Machines

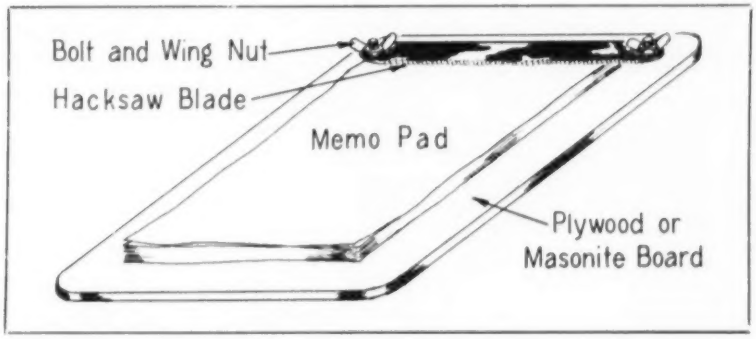
Inexpensive "clip" board

EDITOR TEXTILE INDUSTRIES:

Wherever memo pads are used, a binder for them makes writing easier; and with the addition of a simple member, easier to tear off.

Such a binder can be made with little trouble and expense. Saw a piece of plywood of convenient thickness to 9" x 12". Then select a used hacksaw blade and cut it to 9". Through the hacksaw and plywood bore holes to match near the ends of the blade. Through these holes are inserted small bolts, equipped with wing nuts, to secure the blade to the board. Turn the teeth of the blade toward the open surface of the pad, and use the serrations to aid in tearing.

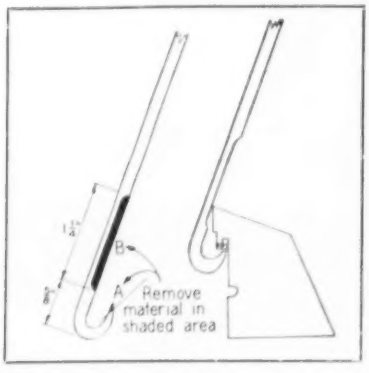
CONTRIBUTOR No. 9030



Speeds needle butt pulling

EDITOR TEXTILE INDUSTRIES:

A modified butt puller for removing needle butts broken off and pushed back against slot can be a work saver as well as a time saver. In many instances a needle butt will be broken and go back against the slot, or it will be pushed back by the knitter. When this happens the knitter will go after the fixer to remove the needle butt. Without this tool invariably it is necessary to remove the needle bar from the knitting machine and remove the needle butt. This causes a lot of waste of time and work and makes what could have been a simple job a difficult one.



Lets take a look at what is involved without the use of this modified butt puller. The fixer has to remove the pins from the needle bar hinges, take the cotter pin from the needle bar arm, remove the needle bar from the machine, and take out the needle butt. Then he must put the needle bar back in place using the same steps as above, only in reverse, and in addition must reset the needle bar using spacers in the pins of the needle bar hinges.

All of this work was done to accomplish about a two-minute job, which was to remove the needle butt. When you stop to consider the knitter's lost time, machine being down and fixer tied up, this can also be very costly, both to the knitter and to the company. For these reasons we are continuously looking for better tools, better methods, and quicker ways of doing things.

This butt puller can be changed very easily by grinding out spaces shown in drawing at points "A" and "B". Grind out a slot 1¼" long, starting ⅝ inch below hook on the inside of the shank; also grind out a small portion of the hook. In the drawing these two areas are shaded.

CONTRIBUTOR No. 9031

Finding weak knitting yarn

EDITOR TEXTILE INDUSTRIES:

In my many years of operating Wildman, Scott & Williams, and other makes of knitting machines, I have often found the fabrics to be sprinkled with small holes which cannot be traced easily to machine malfunctioning. If there is a short piece of yarn left in the hole, the chances are good that soft yarn is causing the trouble.

A soft package is not easily found by trying to trace it from the hole, so here is a method I use in finding the soft ones (it definitely is better than changing the whole set of yarn just to eliminate the soft cones).

Start systematically testing the cones one by one by tensioning the yarn with the forefinger and thumb and tugging at each strand. After some experience it is easy to tell just how much pull a good strand of yarn will stand without breaking. Test each cone until one breaks. That one usually is the soft one. Test again if there is doubt. As a starter it may be useful to test a few pieces of yarn from a cone of known strength. This will help determine the necessary "feel." After a bit of studious practice, the testing becomes almost automatic.

CONTRIBUTOR No. 9021

Uniformity Is No Accident

Quality control can never be a push-button operation in the textile field. That goes for starch, too. So the uniformity of Victor Mill and other Keever starches is constantly checked and rechecked.

The Keever sales-service man who works with you is a trained specialist in mill problems. But he doesn't work alone.

Plant problems are thoroughly discussed in staff meetings. And behind this contact group are some 40 textile engineers, chemists, and technicians with one objective — to help improve your production.

THE KEEVER STARCH COMPANY
GENERAL OFFICES - COLUMBUS, OHIO
Processors of corn, wheat and blended starches for industry since 1898

Switch stops looms properly

EDITOR TEXTILE INDUSTRIES:

In the course of their duties, our weavers, and especially our learners, would occasionally stop one of our W-3 looms with the shipper handle and inadvertently allow the loom to stop with the shuttle not properly boxed. Worse still, the loom would stop sometimes in the middle of a bobbin change. If the operator didn't check the shuttle position before starting the loom, and make sure the condition was corrected, the loom often smashed or threw the wrong shuttle.

I corrected this condition by installing a doorbell switch on the arch of each loom and connecting the switch through the loom stop motion. When now it is necessary to stop a loom by using the shipper handle, the operator merely presses the switch. The warp stop motion permits the loom to stop with the shuttle boxed properly. Starting the loom is as simple as pulling the shipper handle. There is no time lost checking and correcting the shuttle position.

CONTRIBUTOR No. 9036

How is metallic yarn woven?

EDITOR TEXTILE INDUSTRIES:

We are looking for information pertaining to the use of metallic yarns in both warp and filling directions. Can you give us any information pertaining to the quilling set-up that is necessary in order to make the yarn lie flat in the fabric?

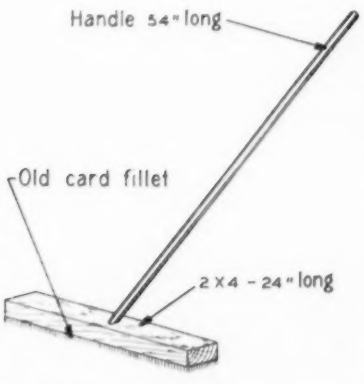
CONTRIBUTOR No. 9043

(Here again a contributor asks for aid. If you can help, send us your reply. There is no waiting—all contributions are paid for upon acceptance.—The Editors)

Try this shop-built broom

EDITOR TEXTILE INDUSTRIES:

The broom shown here is made of a piece of soft wood 2″ x 4″ x 24″ and is covered with old card



fillet. If the floors are of very smooth hard wood, the block can be covered with a piece of belting.

It makes no difference which way the points of the wire turn if the fillet is worn. If new fillet is used the points of the wire should point to the back or sweeper's side of the block.

The brush works very well on concrete and on the average hardwood floor. Our sweepers prefer them to some brushes we bought for $15.00 each. The "store-bought" ones clogged with waste until the sweepers could not push them.

The handle is made from an old mop handle. It doesn't look as well as the purchased brush; but the handle can be set in at an angle to suit the sweeper, and as long as the sweeper is kept happy we can forego some of the better looks.

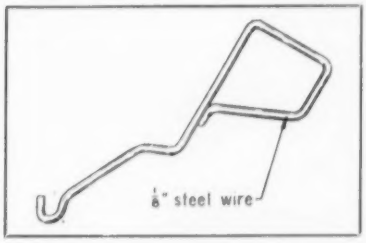
CONTRIBUTOR No. 8997
(Canada)

Cuts F-F down time

EDITOR TEXTILE INDUSTRIES:

In this era of changing machinery and of automatic attachments, it is important that fixers keep up with the changes and do whatever they can to devise means of saving time.

The new Reading machine with automatic bar flippers adds a lot of parts to the welt bar bridges. On these machines the fixer runs into what was once a simple task of removing a knock-over bar. With the simple tool pictured here the fixer

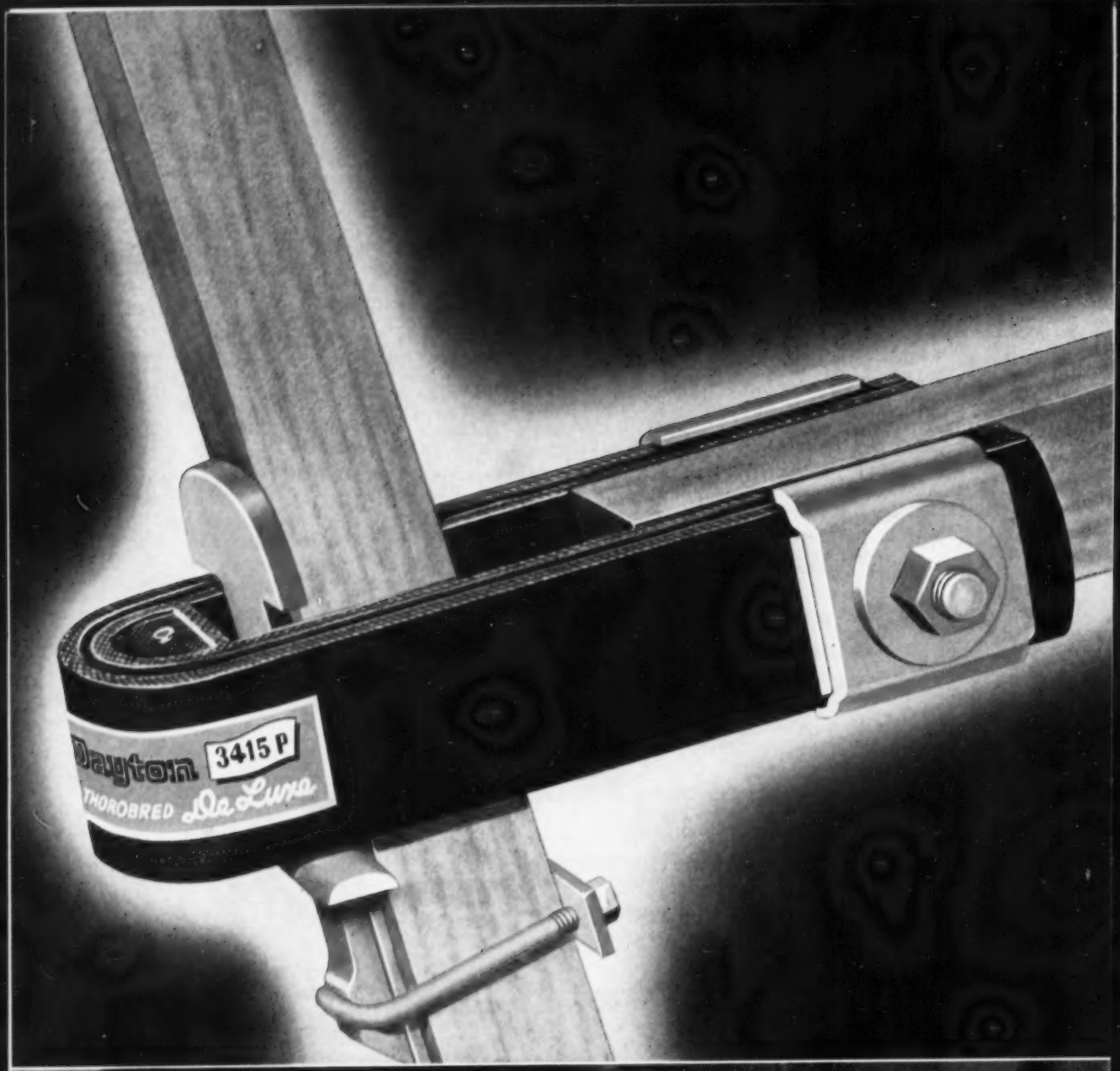


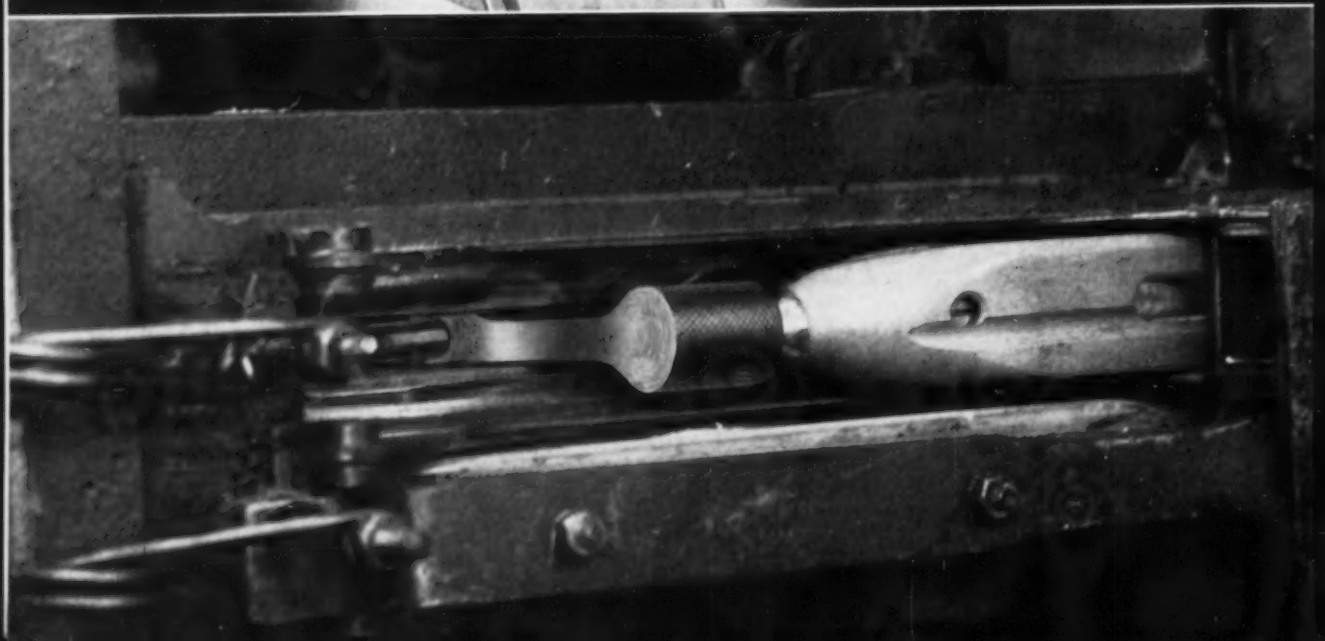
can perform that operation quickly. The steps are:

1. Place the welt bar in rack on top of the machine.
2. Run the machine until needles are in their lowest position.
3. Lay the needle bar out.
4. Remove the pin from the knock-over bar arm.
5. Remove the bearings from each end of knock-over bar.
6. Place point of tool in screw hole of knock-over bar.
7. Pull knock-over bar forward until clear of sinker head. Lower the end of knock-over bar with the arm on until the other end can be taken up between the needle bar and end of sinkers.

To replace knock-over bar in the machine follow the same steps in reverse and set knock-over bar.

CONTRIBUTOR No. 9035


Dayton
3415 P
THOROBRED
DeLuxe



Protect all points of shock

increase production and lower operating costs

With Dayton Thorobred | Deluxe Lug Straps Drop Box Pickers

Install Dayton Thorobred Drop Box Pickers and Deluxe Lug Straps and you immediately provide *double* protection against shock for expensive loom parts. They'll take millions of shuttle contacts and picker stick thrusts without fatigue. Because of their scientific construction they offer the *exact amount of shock absorption needed for the specific degree of shock at each and every point of contact.* Check these construction features:

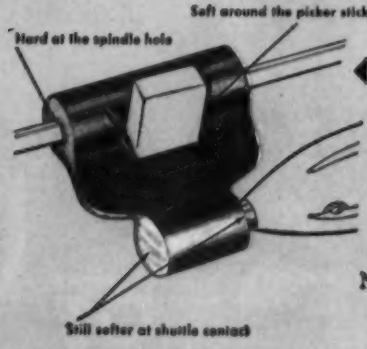
Dayton Thorobred Deluxe Lug Straps, having a one piece, rivet-free construction, give twice the service of ordinary straps. The molded plug, built into the strap loop, cushions the thrusts of the picker stick in rapid motion. Added strength is gained from a longitudinal cord in the center of the lug. Easily applied, they work perfectly in any weather.

Dayton Thorobred Drop Box Pickers, built with 3-Point Density control, provide:

1. Extra hard composition in the bearing surface around the spindle hole.
2. Softer composition around the picker hole to take terrific impacts, reduce stick wear.
3. Still softer composition at the shuttle contact to prevent loosening of shuttle point.

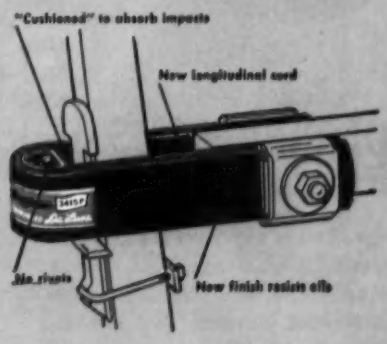
Dayton Drop Box Pickers are available in reversible or non-reversible construction.

To double your protection of expensive, related loom parts, increase production and cut costs ask your Dayton Jobber for additional details – he'll be calling on you soon. Or write direct to The Dayton Rubber Co., Textile Division, 401 S. C. National Bank Bldg., Greenville, S. C.



Thorobred Drop Box Picker
Absorbs loom shock, protects loom parts!

Thorobred Deluxe Lug Strap
One piece construction!
No rivets or other parts to work loose!



© D. R. 1957

Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

COLOR
COLOR
COLOR
COLOR

Nothing gives truer color than **AVISCO**® rayon

Color is more and more the magic of mass sales. Brilliant, true color. Offbeat in-between color. New color that makes the difference between "just looking, thank you," and a sale.

The dye chemist has played his part, and the designer his. It remains only to select the right fiber. Then to make it into a fabric that can be dyed economically enough to bring full color opportunity to any apparel price range.

. . . a fabric that takes the wanted color with precise and unquestioning obedience.

. . . a fabric that will cling to its color through sun, soap or smog.

. . . a fabric that can be finished and textured and tailored however you wish.

Such a fabric is made of Avisco rayon. Promoted with the Avisco Integrity Tag, it assures both converter and retailer that it has met strict standards and will perform as claimed. For details, call LA 4-7200 or write American Viscose Corp., 350 Fifth Ave., New York 1, N. Y.

(Advertisement)

Questions & Answers on... FLOOR MAINTENANCE

Have floor maintenance costs gone up in the last 6 years?

No. They are 30% to 60% less today than in 1951, according to mills using the Tennant System. New seals last 4 times longer, have a better gloss, are easier to clean. Mechanical buffing (dry cleaning) is needed only about 1/10 as often as before. Modern floor care methods are very economical.

•

How often is sanding necessary?

Sanding is now a one-time job with today's maintenance techniques. A correctly sealed and finished floor, properly cleaned and renewed, should never require resanding.

•

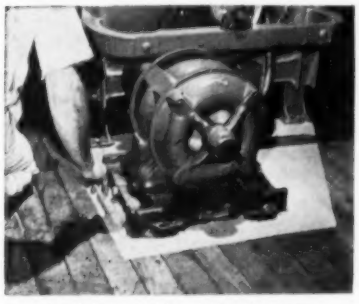
How frequently should our weave room floors need dry cleaning?

Today, rapid dry mop sweeping is sufficient for about 95% of all daily maintenance on correctly sealed floors. As a result you need not dry-clean most weave rooms oftener than at 2-month intervals.

•

How should floor care be scheduled?

Use a master chart showing each department and recommended finishing and maintenance techniques. An attractive 16 x 20 chart, "Guide to Textile Floor Maintenance" is available free from the Tennant company.



Special paint hides dark, oily areas.

What treatment is best for oil-soaked areas under looms, etc.?

Use an attractive masking paint like Tennant No. 201 Oil-Cover Paint. It dries in about 30 minutes, resists oil discoloration, cleans easily. Photo shows typical use around loom motor. Colors: gray, tile red, yellow.

For FREE chart and other data, write G. H. Tennant Co., 735 N. Lilac Drive, Minneapolis 22, Minn.

Tennant shows 127-year-old EXETER MANUFACTURING CO.

how to make floors TWICE as bright — at ½ the cost

Here, in America's oldest cotton mill (in continuous use since 1827), the TENNANT System works its modern magic on the famous floors in Exeter, N.H.

You see the results above. The *tennantized* area (right) is easily twice as bright as before. Yet mills tell us it costs about 50% less to get such results *today* than it did just 5 years ago.

Here's why. Improved Tennant techniques now make floors far brighter, more dirt-resistant. Result: you save 40% to 60% in manhours, buff only 1/5 to 1/10 as often as before, and get 4 times longer average life from newly developed floor seals.

Write today; ask for estimate of NEW savings now possible in your mill.

VERY LITTLE BUFFING is needed today to keep Exeter's historic floors bright. Mill was built shortly after War of 1812.

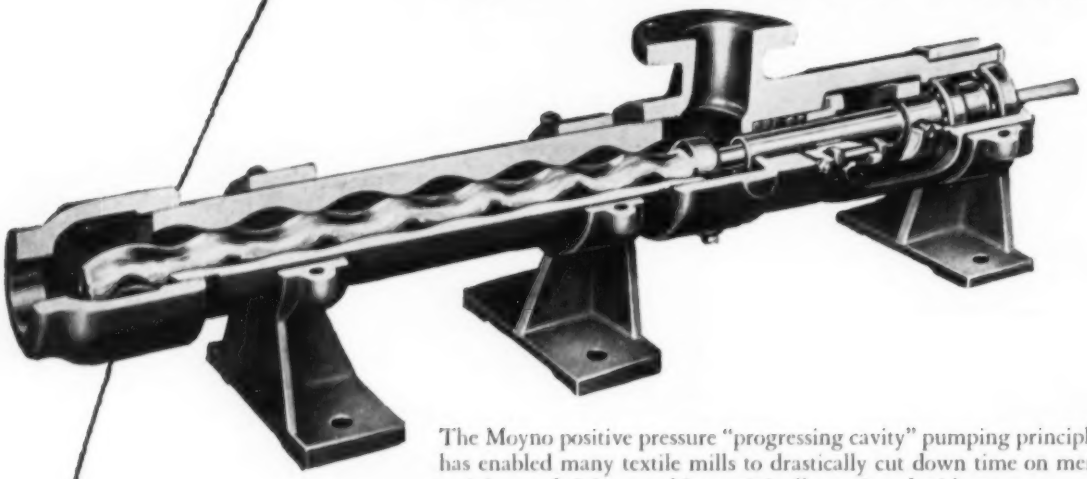
TENNANT
ESTABLISHED 1870

G. H. TENNANT CO.
735 N. Lilac Drive
Minneapolis II, Minn.

FLOOR MAINTENANCE SYSTEM

in textile mills . . .

MOYNO® PUMPS CUT DOWN TIME



The Moyno positive pressure "progressing cavity" pumping principle has enabled many textile mills to drastically cut down time on mercerizing and sizing machines originally equipped with rotary pumps which wear quickly and lose capacity and suction characteristics. Moyno is the only pump that can satisfactorily handle many caustic alkali solutions without excessive wear, foaming or aerating.

As shown above, Moyno Pumps have a screw-like rotor that revolves in a double threaded stator creating progressing cavities which smoothly move material through the pump. They will pump anything that will move through a pipe . . . even plaster and non-pourable pastes!

Moyno Pumps are available in capacities up to 500 gpm and pressures up to 1000 psi.

Examine your processing methods. No doubt there are several places where Moyno Pumps can drastically cut costs. Ask us, we'll give you a frank answer. Send us an outline of your problem today! Write for Bulletin 30-TI.

R&M®

ROBBINS & MYERS, INC.

SPRINGFIELD, OHIO / BRANTFORD, ONTARIO

Motors · Fans · Hoists · Moyno® Pumps · Propellair® (Industrial) Fans

NEW EQUIPMENT PARADE

Machines and Equipment . . . Supplies and Services . . . Dyes and Chemicals . . . Books

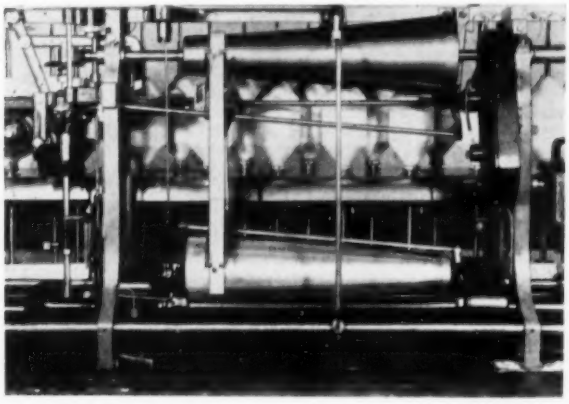
Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.

Roving frame builds 12" x 7" packages

A 96-spindle 12" x 7" roving frame which builds a package containing from 30% to 60% more roving by weight than the 12" x 6" frame, is available with a wide range of drafting systems.

Built on a frame of 10¼" gauge, the new production unit features several design changes made necessary by the increased package size. The principal changes were made in the bobbin building assembly, in the application of anti-friction bearings to the lifter gearing unit and the lifter shafts, and in flyer construction.

Large cones were made to permit the frame to build the 7" diameter package without belt slippage under the



added load, and to provide the added belt traverse needed. Otherwise the frame is like the 12" x 6½" machine.

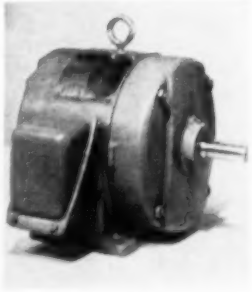
The flyer is designed to operate at high production speeds on a 10¼" gauge frame with a normal range of 735 rpm.

Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

Do you want more data? Write ◆ or use card on page 253; list J-101

Enclosed, non-ventilated textile motor

An enclosed, non-ventilated textile motor which is virtually maintenance-free, is designed for such applications as pickers, cards, spinning frames, fly frames, spoolers, warpers, and slashers. The Tri-Clad 55 motor is smaller and lighter than the screenless open textile line it replaces.



The motor's stator insulation system is specifically designed for operation in the 75 C rise temperature range. It is rated 75 C rise continuous to obtain the maximum horsepower from the smallest practical frame size.

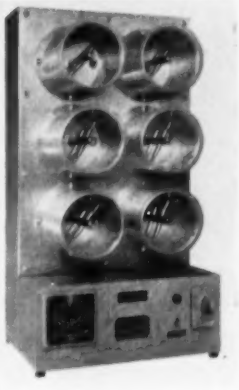
The enclosed, non-ventilated design minimizes fire hazards by preventing lint from coming into contact with the windings. Lint cleaning is virtually eliminated. The rugged cast iron construction of the textile motor resists physical damage.

Engineered to take advantage of new lubricants developed by the petroleum industry, the motor uses bearing systems which seal dirt out and seal grease in. Because of advances in insulating materials, the life of the new line will equal the life of 55 C rise motors.

General Electric Co., Apparatus Sales Div., 1 River Rd., Schenectady 5, N. Y.

Do you want more data? Write ◆ or use card on page 253; list J-102

Tester produces authentic "pills"



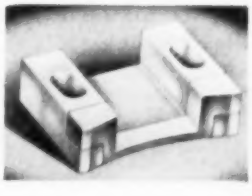
The commercial version of the Random Tumble Pilling Tester developed by the Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc., produces pills and fuzz which correlate well with actual end use performance in respect to number, size, and appearance.

The realistic appearance of the test specimens permits rating by subjective evaluation techniques. The recommended test procedure produces results in a one hour test that is equivalent to 300 hours of actual wear. The machine is available with two, four, or six test chambers per machine.

Atlas Electric Devices Co., 4114 N. Ravenswood Ave., Chicago 13, Ill.

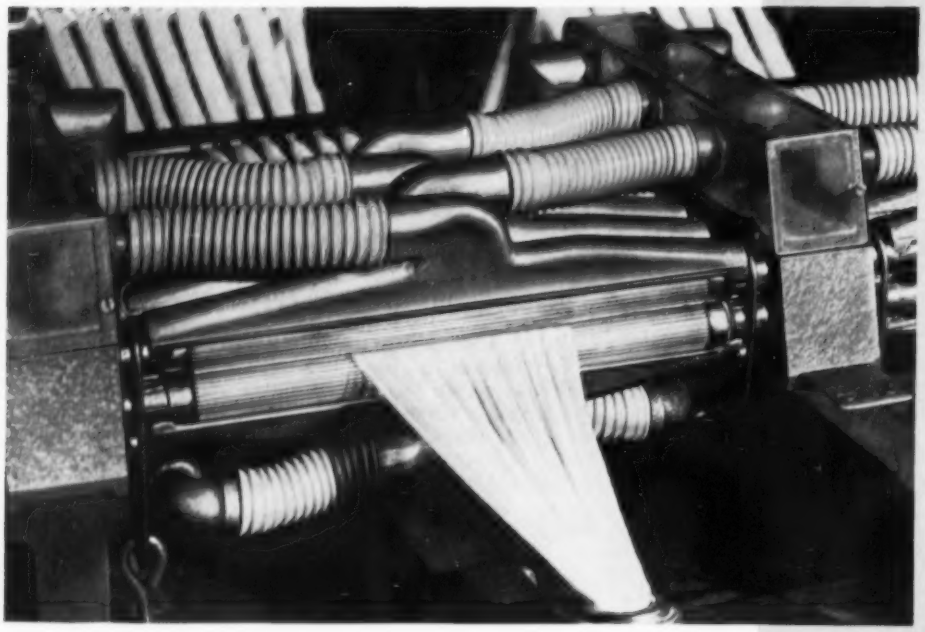
Do you want more data? Write ◆ or use card on page 253; list J-103

Throat plates lower knitting cost



Greatly increased life on knitting machines is offered by Ace Throat Plates of molded nylon with AlSiMag ceramic inserts. These plates eliminate the need for periodic polishing and/or regrinding necessary with

It's New! Vacuum Cleaning* for *Feathertouch* Drafting



New in Principle
New in Efficiency

Like the rest of the Feathertouch Drafting System, our Vacuum Cleaning relies on new scientific design for its exceptional results. It gently picks up dirt, trash, and fly, FROM THE ROLLS instead of sucking them forcibly out of the web. Test frames, in ordinary mill operation show the following results.

LESS STAPLE WASTE Tests show that using vacuum *on the rolls* instead of on the web saves greatly on staple pick up. Less than 1% of the collected waste consists of good staple.

CLEANER SLIVER Although exact records were not kept, the amount of dirt, trash, and fly far exceeded the normal percentage of such cleanings.

LESS LAP UPS Individual roll cleaners and instant knock-off action greatly reduce lap ups.

90% LESS CLEANING TIME No bottom or top clearers to pick.

ELIMINATES SLUBS

INCREASED PRODUCTION The Vacuum Cleaning System permits fuller utilization of Ideal Feathertouch Drafting's tremendous potential speed. Records show a production of 2,100 yards every 17 minutes — 370 feet per minute.

*Pat. Pending

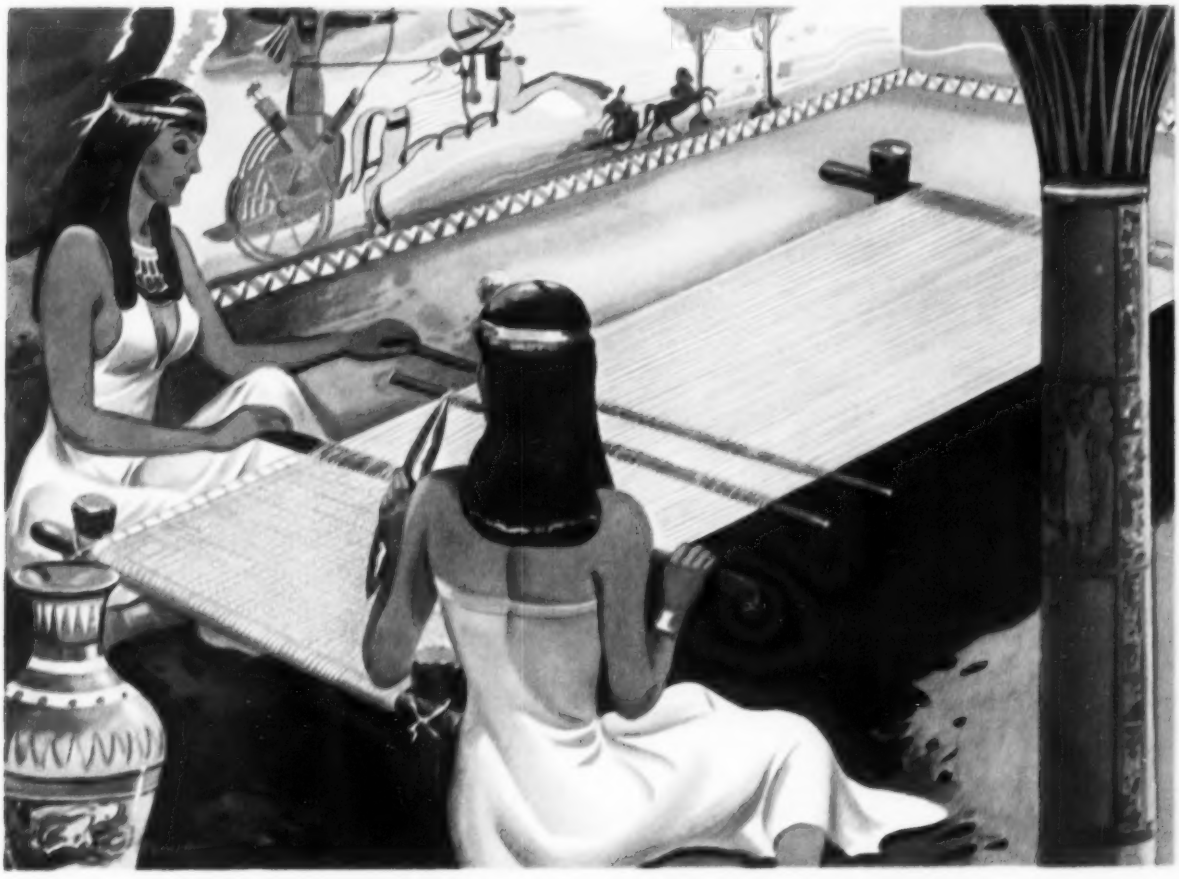
Specifications:

1. Each roll has an individual close-fitting, full-length cleaner.
2. Each delivery has an individual plastic viewing section for visual observation of performance.
3. Each frame has its individual vacuum system and collector box.
4. Does not increase frame height.

Ideal Industries, Inc.
Bessemer City, N. C.

Staley's presents:

Weavers Through The Ages



Egypt... First Century

"In upper Egypt, toward Arabia, there grows a shrub from which the stuffs are made which we call Xylina (cotton fabric)"—Pliny: A Roman Naturalist, 23-79 A.D.

Little did Pliny realize, at the time of this observation, that the lowly shrub he called Xylina would grow into one of the key money crops of world economy.

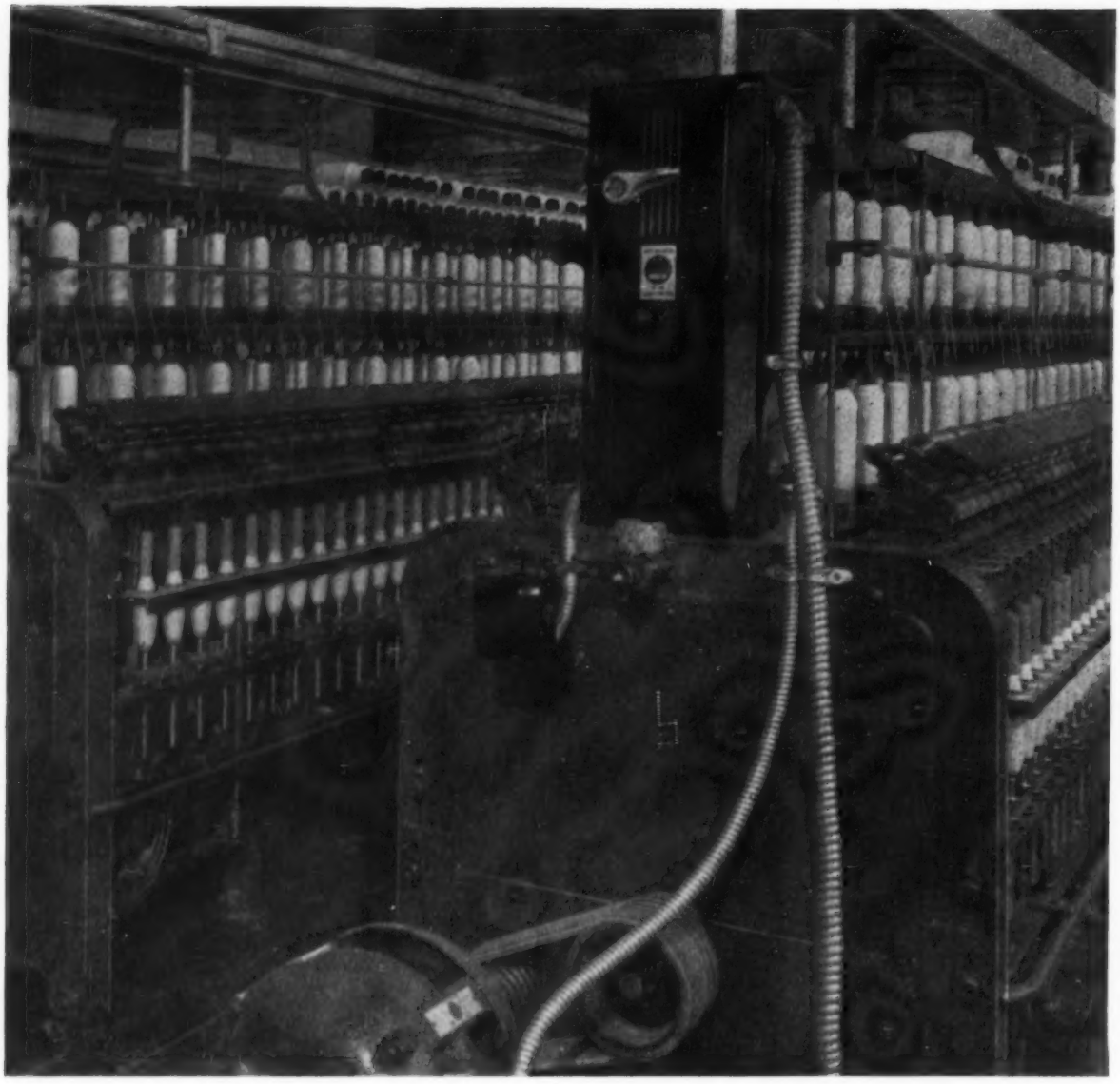
From the wearing of cotton garments by Egyptian priests almost 2000 years ago, cotton today touches our lives wherever we turn. We wear it, sleep on it, walk on it, dress wounds with it, hang it at windows, tie packages with it . . . yes, in countless ways, cotton reigns supreme. Undisputed King of the textile world.

Today, King Cotton counts the name of Staley high on its loyalty list. For three generations, the A. E. Staley Mfg. Co. has worked to bring textile men the finest in research, products and services. For example, Staley's new multimillion dollar research program is dedicated to continued textile progress. New uses for cottons, new synthetics, new textile combinations . . . all demand new methods and products for quality sizing, finishing and printing at reduced cost.

In full realization that profits are the foundation of your future, Staley's stands ready and able to assist you toward developing a brighter textile tomorrow. Let's meet these challenges together.

A. E. Staley Mfg. Co., Decatur, Illinois

Branch Offices: Atlanta · Boston · Chicago · Cleveland · Kansas City
New York · Philadelphia · San Francisco · St. Louis



Preference Based on Performance

After 71 years of service to the Southern textile industry, Standard Oil products continue to be *first* in point of popularity. There's only one answer. To stay first your product must be *dependable*, your service *superior*.

Standard Oil was first to offer special lubricants for textile machinery, and for over half a century these have been constantly improved to meet changing needs. Wherever there are moving parts—from one end of your mill to the other there are special types of Standard Oil lubricants to afford maximum protection.

STANDARD OIL LUBRICANTS

STANDARD OIL COMPANY (Kentucky)

metal types. Additional advantages include: (1) elimination of bad work, waste, and imperfect quality resulting from cut or impaired metal throat plates; (2) increased production; and (3) decreased costs. The plates are available for 400-needle and 474-needle circular knitting machines.

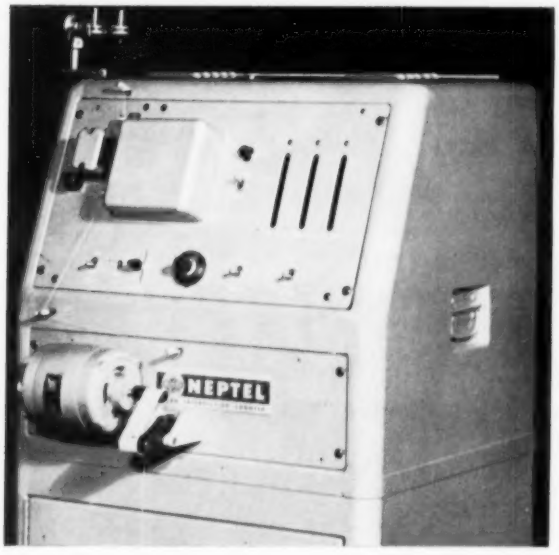
The design of the plates combines the advantages of molded nylon with the wear resistance of ceramics. The nylon base absorbs impact and vibration while the only surfaces coming into contact with yarn are those of the hard (8 on Moh's scale) insert.

Marvel Specialty Co., P. O. Box 125, Paducah, Ky.

Do you want more data? Write ◆ or use card on page 253; list J-104

Improved version of nep counter

An improved design of the Neptel electronic instrument, which automatically measures and counts yarn neps and imperfections, is now being produced. The instrument,



a floor type, will inspect and record the imperfections in 50 yards of yarn in 30 seconds.

The test yarn passes automatically through a high-intensity, ribbon-shaped beam of light. Abrupt variations in the yarn cause comparable variations in the amount of light falling onto a photocell. The photocell converts these changes into electrical signals which pass through electronic circuits to operate counters whenever the light beam notes an imperfection.

The Sheffield Corp., Box 893, Dayton 1, Ohio.

Do you want more data? Write ◆ or use card on page 253; list J-105

Hosiery packaging machine cuts box inventory

A machine for erecting cartons for packaging men's and ladies' hosiery is for use in any hosiery mill, whether formally engaged in packaging or not.

Only a small inventory of box blanks is necessary, and these may be erected or assembled as convenient. The assembly machine is called Kauma-Loc, and the cartons or box blanks are called Presto-Loc.

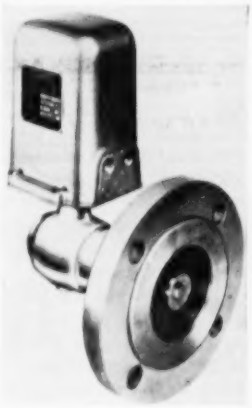
Advantages to the mill are: no wet glue is used—only preapplied pressure seal adhesive is used; no heat or water is necessary; machine is small and compact, requiring only 8 sq ft of floor space or 32 cu ft; effects material cost reductions from 19-37%; 27 blanks may be inventoried in the same area formerly occupied by one box.

Boxes are machine-erected as needed and are 50% smaller and lighter than usual, making folding and packing hosiery easier.

Kaumagraph Co., 14th & Poplar Sts., Wilmington 99, Del.

Do you want more data? Write ◆ or use card on page 253; list J-106

Determines level of viscous fluids



A differential pressure liquid level transmitter, the Type 13 FA d/p Cell Transmitter, mounts directly on a tank nozzle to provide a simple method for measuring viscous or slurry-type liquids in open or closed vessels. Examples: Liquid level in pressure dyeing machines, and size level in kettles. It operates on the force balance principle and maintains calibrated accuracy over a wide range of ambient conditions.

The level measuring element, a silicone-filled diaphragm capsule, is assembled in a 3-inch flange for flush mounting on the side of a vessel. Head of liquid in the vessel applies force to the high pressure side of the capsule which is opposed by force on the low pressure side. The low pressure side may be open to atmosphere for measurement of open tank level. Or it may be connected by piping to the top of a closed tank to balance out static pressure. Adjustable range suppression and elevation springs can be easily attached to accommodate the various installation arrangements.

The pneumatic output of the transmitter, a 3-15 psi signal proportional to tank level, will operate a remote indicator, recorder or controller. No auxiliary signal amplifier is needed. Purging systems are eliminated since viscous liquids are measured at tank side and not conducted through tubing. Wetted parts are Type 316 stainless steel.

The Foxboro Co., Foxboro, Mass.

Do you want more data? Write ◆ or use card on page 253; list J-107

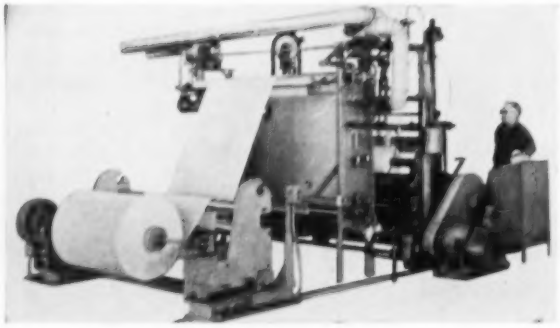
Single-head border machines offer high output

Models MJL and MJT Jacquard flat knit and border machines made by Servo-Stop Machines of Roanne, France, are now available in the U.S. These machines make pattern borders and produce as much on a single head as is usual on double head machines.

Border material may be made for any type of garment. Model MJT has a 7½-inch knitting surface, and Model MJL has a 31-inch knitting surface. Available gauges are: 5, 7, 8, 10, 12, 14, and 18.

Mac M. Rothkopf and Co., Inc., 317 Bushwick Ave., Brooklyn 6, N. Y.

Do you want more data? Write ◆ or use card on page 253; list J-108



Moisture conditioner for textile webs

A compact, low-cost web conditioner for adding moisture in controlled amounts to textile and other web materials comprises a steel enclosure slightly wider than the web to be conditioned (approximately 38" high and 16" thick). It is mounted in the path of the goods at any convenient location and the web travels vertically through it, entering and leaving through slots at the top and bottom respectively. Models also are available for horizontal web travel.

The outer casing has a layer of insulation between it and an aluminum lining, and within this housing are two systems of steam piping. One system sprays the web as it passes between opposing banks of nozzles. The other, next to the aluminum lining, heats the chamber to prevent condensation and dripping. A steam zone at the entrance of the box preconditions the web before it reaches the steam nozzles. Exhaust ports are located at the sides of the preconditioning chamber and a blower exhausts spent steam.

By controlling the steam pressure at the nozzles, it is possible to regulate the amount of moisture added to the web. The user ascertains the moisture content of the product before conditioning, decides the desirable content, and regulates the conditioner to add the desired amount. Experience indicates proper regulation for various types of web. Should the web be stopped in process, spray-nozzles are automatically turned off so not to continuously spray the material in one location.

The conditioner may be used as a separate unit or may be installed in tandem with processing equipment.

J. O. Ross Engineering Corp., 444 Madison Ave., New York 16, N. Y.

Do you want more data? Write ◂ or use card on page 253; list J-109

Cotton fineness meter

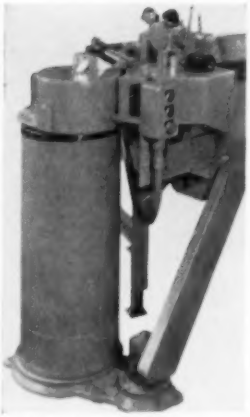
The W. I. R. A. Fineness Meter measures variations in fiber maturity among cottons of similar intrinsic fiber fineness. The results may be expressed in terms of either (1) a combined fiber maturity and intrinsic fiber fineness factor or (2) Micronaire values. Quick and accurate to use, the result may be obtained in about three minutes.

A weighed test specimen of 6 grams of cotton fibers is packed into a perforated container and air is drawn through by a pump. The pressure drop across the sample is adjusted to a constant value and the air flow in liters per minute is read off directly from the vertical flow-meter. The flow scale may be calibrated in terms of a combined maturity and intrinsic factor by using different samples of cotton.

Shirley Developments, Ltd., 40 King St., West, Manchester 3, England

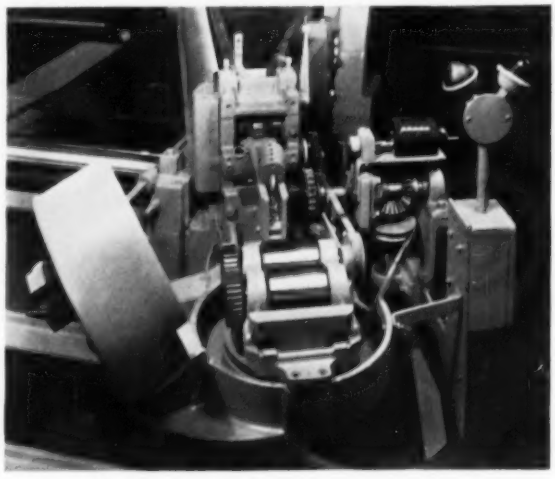
Do you want more data? Write ◂ or use card on page 253; list J-110

New coiler for Pacific Converter



A space-saving coiler mechanism for the Pacific Converter, featuring sealed bearing lubrication is available.

Requiring approximately three feet less floor area than previous models, the coiler utilizes permanently lubricated bearings at all major wear points, including the coiler rotor, thus making possible long, maintenance-free operation. In addition, simplified mechanical design reduces the unit's overall service requirements and holds necessary operating adjustments to an absolute minimum.



The coiler rotor is belt driven in the new assembly, with a combination of fiber and cast iron gears transmitting power to the calender rolls. Change gears of one-tooth increments and two adjustable sheaves provide an infinite range of take-up speeds from the crimper box. Because the coiler design is of the pusher type, the unit is practically self-threading.

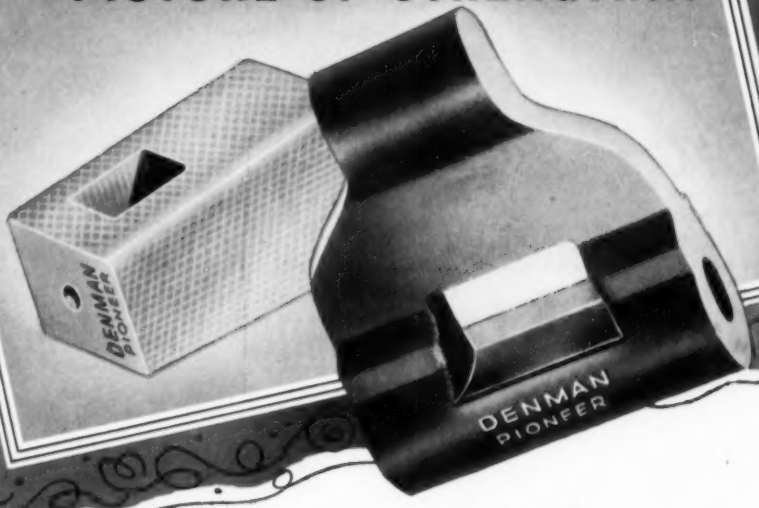
The combination of sealed bearings and belt drive rotor also minimizes the danger of stock contamination and makes the coiler simple to maintain and clean.

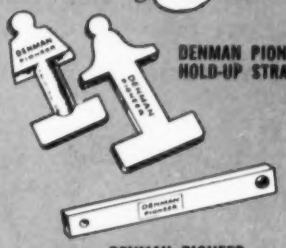
Manufactured by the Petty Machine Company, the new coiler mechanism will be supplied as standard equipment on all new Pacific Converters.

The Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

Do you want more data? Write ◂ or use card on page 253; list J-111

PICTURE OF STRENGTH...

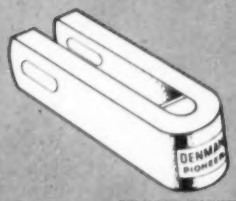




DENMAN PIONEER HOLD-UP STRAPS

DENMAN PIONEER SWEEPSTICK

DENMAN PIONEER SPINDLE ROD BUMPER



DENMAN PIONEER LUG STRAP

DENMAN PIONEER BOBBIN STRIPPER BLADE

DENMAN PIONEER DOLL PICKER

Original

Denman

PIONEER LOOM PARTS

PROTECT expensive loom parts! INCREASE loom efficiency!

ABSORB high-speed loom shocks! LONGER "prime of life"!

Original Denman Pioneer Loom Parts are engineered and moulded for one purpose only . . . to give greater efficiency, longer life, smoother performance in all your loom operations. All are compounded of only the very finest materials to withstand wear, produce the exact amount of resilience necessary to absorb shock and vibration with minimum wear and tear on the loom. To cut costs, increase production, protect expensive looms . . . SPECIFY ORIGINAL DENMAN PIONEER LOOM PARTS!

Ask The DENMAN Sales Agent Nearest You . . .

R. E. L. HOLT, JR. & ASSOCIATES, INC. Drawer 1319, Greensboro, N.C.

JOHN P. NORMAN, P.O. Box 445, West Point, Ga.

DAVE SELLARS, Drawer 1319, Greensboro, N.C.

THE KARL H. INDERFURTH CO., INC. *(Exclusive Selling Agent and Warehouse)* P.O. Box 6161, Charlotte, N.C.

TEXPLANT CORPORATION, 695 Summer Street, Stamford, Conn.

ALBERT R. BREEN 80 E. Jackson Blvd., Chicago 4, Ill.

R. D. HUGHES COMPANY 9425 Garland Road, Dallas, Texas

Other Representatives Throughout the World . . . Or Write

DENMAN TEXTILE RUBBER COMPANY

2828 Second Street • Cuyahoga Falls, Ohio

NEW YORK • PHILADELPHIA • CHARLOTTE, N.C.

Now a 2nd Hi-Torc – the NEW Gessner 30 Roll Hi-Torc Napper

Field of napping greatly broadened to include greater range and weight of fabrics

Wide acceptance of Gessner's Hi-Torc principle led to this newest napper

Much more nap in much less time

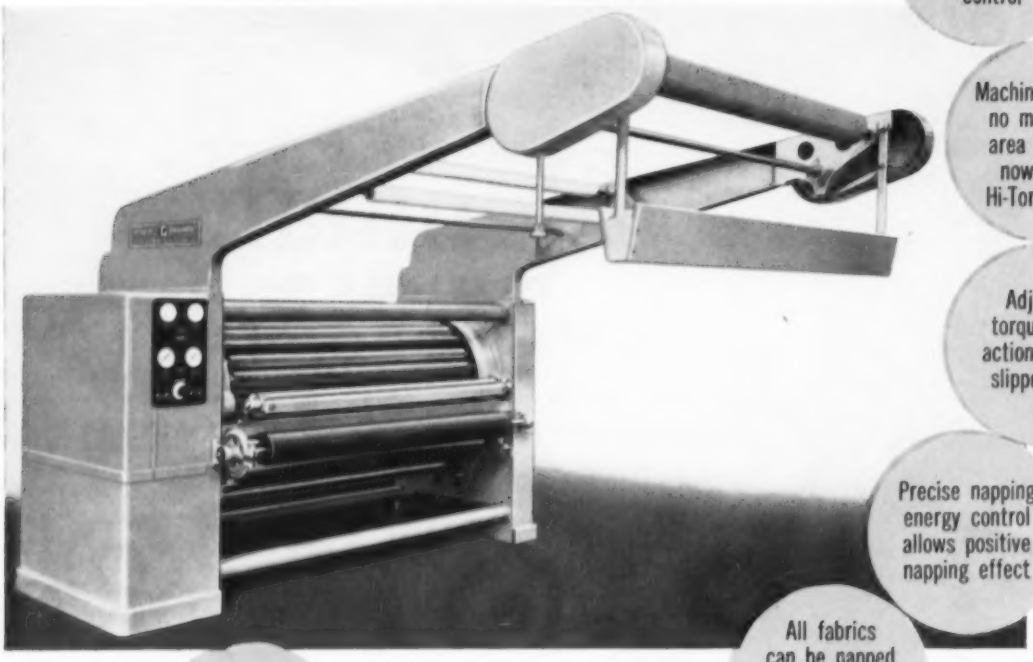
Greater roll torque available under finger tip control

Machine occupies no more floor area than the now-famous Hi-Torc Napper

Adjustable torque-raising action prevents slipped filling

Precise napping energy control allows positive napping effect

All fabrics can be napped with maximum torque raising action



Felting action obtained by the simple turn of control knobs.

Breaking, raising and finishing can be done on one machine

Exact duplication of raising action through hydraulic control system

DAVID GESSNER CO.

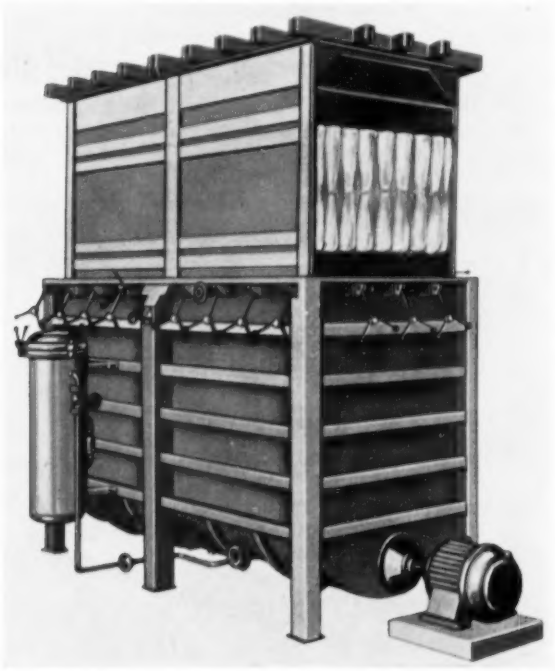
WORCESTER, MASS.

Western Representative: E. G. Paules & Co., 1762 West Vernon Ave., Los Angeles, California Canadian Representative: W. J. Westaway, Montreal, Quebec, Hamilton, Ontario

Gessner Improved Cloth Finishing Machines maintain a standard of performance to meet the exact requirements of your cloth finishing.

Pressure skein dyeing machine

A high temperature and high pressure skein dyeing machine, made by Scholl, Ltd., Switzerland, is especially adapted for temperatures up to 230 F, and can be used for dyeing wool and all synthetic materials. It will provide extremely good results with high bulk Orlon (it uses the double stick method which controls the amount of bulking). No stick marks, channeling, or wrinkling can occur in the yarn.



The design of the dyer permits full penetration of the dye liquor into the yarn. As a result color impregnation is completely uniform. This design also includes a special pump which assures uniform dye liquor circulation at all points in the machine — preventing any variation among and between the skeins. The top of the yarn carrier in the dyer acts as a cover — facilitating handling of the material.

The dyer is available with capacities of 25, 55, 125 and 250-lb dye lots. In the 250-lb machine the material carrier separates the tank into two compartments of 125 lb each. This guarantees even flow of the liquor. Two or more machines can be coupled together for dyeing to the same shade.

The Cosa Corp., 405 Lexington Ave., New York 17, N. Y.

Do you want more data? Write ◂ or use card on page 253; list J-112

Treated knitting machine parts last much longer

Knitting machine parts such as cams, throat plates, selectors, etc., treated by the "Flame-Plating" process have a life from 6 to 10 times that of regular hardened parts.

The hardening method is one in which particles of tungsten carbide are literally blasted onto the surface of the workpiece. Particles of the carbide are fed into the chamber of a specially-constructed gun and are suspended in a mixture of oxygen and acetylene. When this mixture is ignited, a detonation takes place which heats the particles to plasticity. These particles, driven at a rate 10 times the speed of sound, are directed through the gun barrel to embed themselves in the surface of the workpiece where a microscopic welding action takes place. The surface is then polished.

H. E. Crawford Co., Inc., P. O. Box 427, Kernersville, N. C.

Do you want more data? Write ◂ or use card on page 253; list J-113

Solution-dyed novelty yarns

Solution-dyed novelty yarns which will live with sunshine and soap and water and remain serviceable are available in yarns named Cupioni and Strata. The Cupioni slub yarn is available in three deniers: 150, 275, and 900. Strata is offered in two deniers: 600 and 900.

Fourteen colors are available including gold, light blue, tan, gray, medium beige, mint green, sea mist, pink, rose, royal blue, red, green, brown, and black.

Cupioni and Strata may be combined with warps of cotton, rayon, Bemberg, acetate, nylon, Fortisan, or any of the newer synthetics, in fabric weights suitable for curtains, draperies, bedspreads, and upholstery.

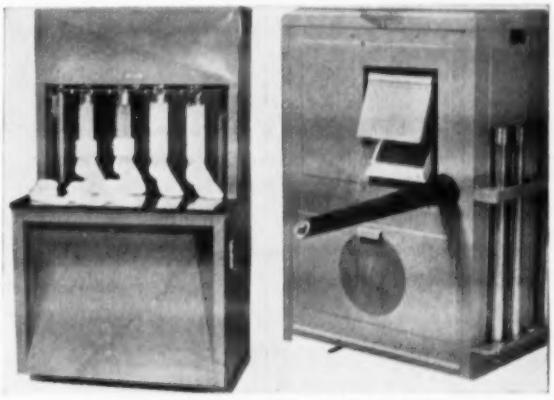
American Bemberg, 261 Fifth Ave., New York, N. Y.

Do you want more data? Write ◂ or use card on page 253; list J-114

Cuffs 500 dozen socks per eight hours

Cuffomatic, a machine for cuffing Morpuls, bobby socks, etc., automatically produces a perfect triple roll (double cuff) on four socks quickly and simultaneously. Single cuffing is available also. Capable of producing 500 dozen cuffed hose per eight-hour shift, the unit is manufactured by Specialty Manufacturers and Sales Co., Acworth, Ga.

Included is a method of changing the size of the cuffs within a matter of seconds, and a conveyor belt to carry the production to the next operation, eliminating the need for stacking and carrying by hand.

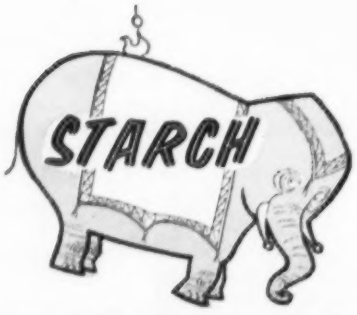


Automatic cuffer (left) and hosiery turner.

The Model 3 pneumatic hosiery turner utilizes two operators per shift to produce 1200 dozen per eight hours. The machine is adaptable to turning Morpul, cushioned-foot, and coarse-gauge socks of all types and ranges to infant's hosiery.

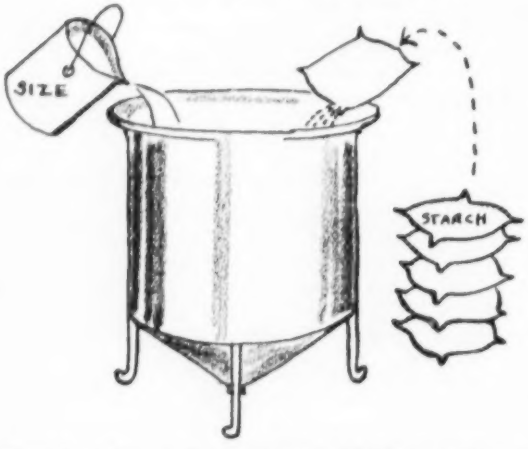
It is also available with custom inspection forms for

BULK HANDLING OF



Or Bulk Mixing In The Starch Warehouse

(A FULL SHIFT SUPPLY IN 5 MINUTES)



Both Are Feasible With The NEMO JET COOKER

If you've been thinking about BULK HANDLING OF STARCH or bulk mixing in the warehouse, it's a feasible and economic procedure with the NEMO JET COOKER—one that should pay for itself in less than 18 months.

Get the facts about the simplified delivery, storage and handling of starch

PLUS . . . savings of size thru use of the NEMO JET COOKER itself, while eliminating the need for expensive and long conveyors.

May we submit a proposal?

NEMO INDUSTRIES, INC.

3081 Maple Drive, N. E. Atlanta, Ga.
Phone: CEdar 7-1947
CEdar 3-1088

those mills desiring to inspect and turn in one operation.

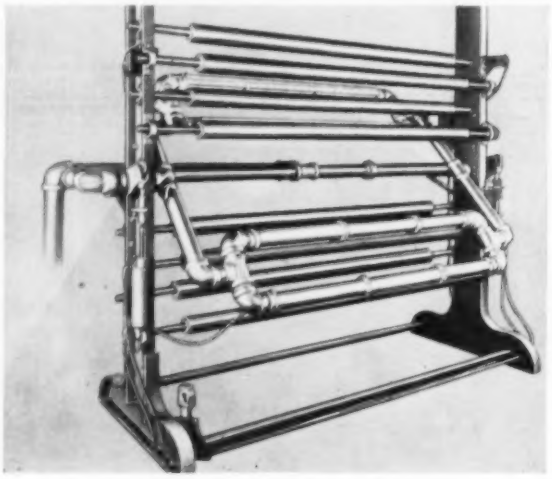
Changing from turning to inspecting requires only a few seconds. The unit also is manufactured by Specialty Manufacturers and Sales Co., Acworth, Ga.

International Textile Machine Co., 403 N. Tryon St., Charlotte, N. C.

Do you want more data? Write ◂ or use card on page 253; list J-115

Singeing machine has water-cooled rolls

The IHE Dacron Singeing Machine is designed to prevent pilling in Dacron and other synthetic fabrics. The machine is fitted with water-cooled rolls over which



the cloth is passed. While in the bent state around the rolls, the cloth is subjected to flames directed from four ceramic-type burners — fibers otherwise imbedded in the fabric are set up to be burned away. The water-cooled rolls reduce pilling to a minimum.

Since the fabric is passed over fixed rolls, the burners are built to swing away from the rolls as cloth speed approaches zero.

Industrial Heat Engineering Co., 121 Cleveland St., Greenville, S. C.

Do you want more data? Write ◂ or use card on page 253; list J-116

Convertible carpet loom for Wilton types

Now available is an all-purpose narrow carpet loom which offers the advantage of 50 per cent higher speed than the conventional wire loom. It will weave a full range from hair-cord and fine Brussels (with orthodox pile wires) to velvets and best Jacquard designs on the face-to-face principle.

Convertibility from single to double carpet weaving takes only 12 to 15 hours, and means dismantling the wire motion, fitting the circular knife, gearing up to the double Jacquard, and adding extra take-up rollers.

The wire motion of the single carpet loom, which runs at 150 picks per minute, derives from an epicyclic drive and maintains a constant speed, eliminating "bumps" at the extremities.

Besides the ordinary filling forks, which stop the loom when the filling runs off, there is a feeler innovation for carpets which enters the box front and the side of the

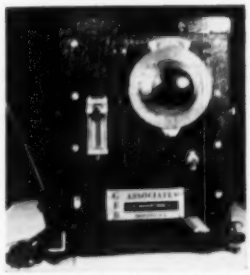
shuttle, and makes electrical contact to stop the loom when the cop is almost exhausted.

Another innovation is the wire skimmer, a stop motion ready in cases of the pile wire getting out of control. It is a crescent-shaped metal strip extending over the wires beyond the carpet selvage. Should a wire fly too high or somehow fail to contact the skimmer, the loom stops. When converted, the loom is exactly like the Wilson & Longbottom face-to-face loom.

Wilson & Longbottom, Ltd., Nelson Foundry, Barnsley, England.

Do you want more data? Write ◆ or use card on page 253; list J-117

Quickly measure single-fiber density



The GFB Fiber Vibrascope is a research, testing, and production instrument for measuring single-fiber or strand linear density (or denier) with ease, accuracy, and speed by vibrating at constant frequency the variably-weighted fiber at a preselected length.

With improved means for handling and inserting the specimen, the unskilled operator may obtain linear density (and therefrom average cross-sectional area among other things) on a large, direct-reading linear dial in less than one minute. An optical system gives a magnified specimen image on the screen for operator's ease and comfort; it is easily adjusted for sharp image of all or part of fiber.

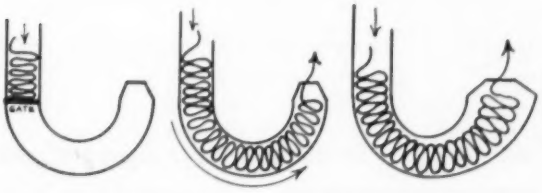
The over-all range of the Model A.1. is about 1 to 100 denier (about 0.000001 to 0.0001 gr/cm) with correspondingly small diameters determined by the specimen volume density. Model A.2. is available for deniers to 1600 approximately.

G. F. Bush Associates, Box 175, Princeton, N. J.

Do you want more data? Write ◆ or use card on page 253; list J-118

J-Box design reduces cloth damage

A J-Box design which departs from conventional shapes is applicable to either Becco or du Pont types. The changes



One of the changes consists of a loading gate (left) which holds the cloth and releases it enmass to prevent tangling in the bottom of the "J" (center). This action permits uniform loading. The other change involves flaring the discharge end of the J-Box to permit the cloth to loosen as it is withdrawn (right).

consist of a loading gate which prevents cloth damage resulting from tangling in the bottom of the "J", and a flared opening to allow the cloth to loosen as it is pulled from the box.

Cook Machine Co., Inc., P. O. Box 397, Nashua, N. H.

Do you want more data? Write ◆ or use card on page 253; list J-119

Looper thread measurer and tensioner

A thread measuring device for Model P loopers for outerwear and underwear also serves as a yarn tensioner. The device will feed more thread into the stitch than can be handled by the needle arm, thereby producing a more elastic stitch.

Advantages of this unit include: considerably more elasticity than is possible using normal tension; weaker looping yarns may be used than is usually possible; looping yarns which have not been preshrunk may be used; the device is small, neat, easy to adjust, and can be run at high speeds.

Vibration is no problem at high speeds, but the device has the same disadvantages inherent in any thread measuring device in that it cuts down on chaining ability. The more thread fed into the sewing mechanism, the shorter the distance the machine will chain.

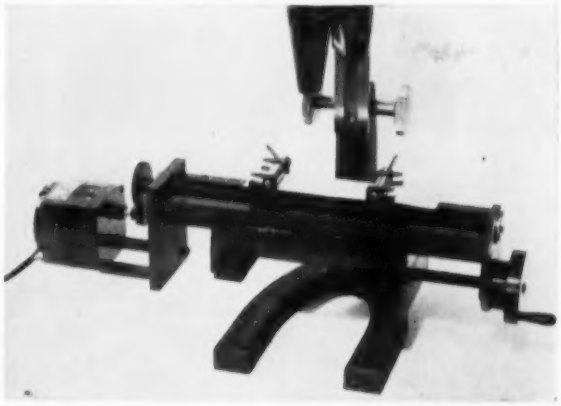
Southern Textile Machinery Co., Paducah, Ky.

Do you want more data? Write ◆ or use card on page 253; list J-120

Watch while it tears

The "Visual Tear Tester," Model CS-87 allows the technician to observe under a microscope the tearing and drawing properties of paper, yarn, etc. It may be mounted on any microscope having a plain stage.

The tester consists of two cam-acting jaws mounted on



ways driven by a reversible synchronous motor through a ball-bearing lead screw. A scale is engraved on the unit to indicate jaw separation up to 8 inches in increments of 0.10 inches. The jaws travel apart at the following rates: 0.112, 0.150, 0.300 and 0.800 inches per minute by means of change gears. The maximum tension is 50 lb.

Custom Scientific Instruments, Inc., Arlington, N. J.

Do you want more data? Write ◆ or use card on page 253; list J-121

Automatic sweater finisher

The sweater finisher, Model SW-1, is used exclusively on synthetic sweaters or on any garments that must be steamed but not pressed. Steaming and blowing are fully automatic, and two units can put out 55 sweaters per operator per minute. It features a sizing and shaping attachment.

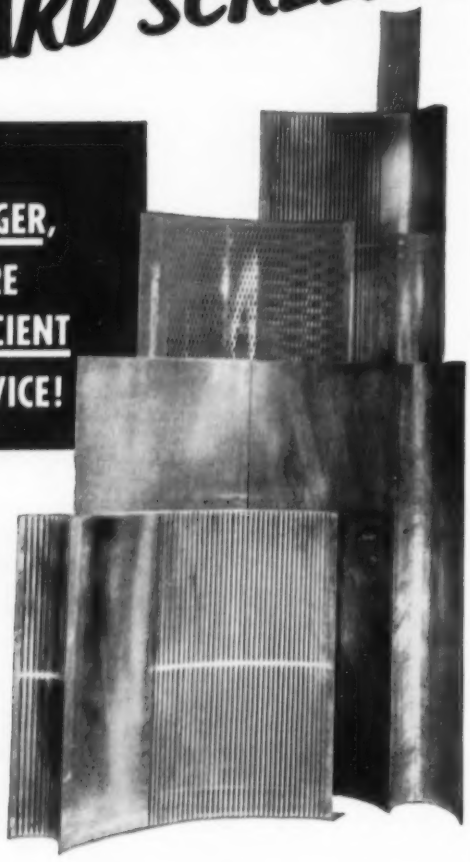
New York Pressing Machinery Corp., 880 Broadway, New York 3, N. Y.

Do you want more data? Write ◆ or use card on page 253; list J-122

Gastonia

Precision-built CARD SCREENS

for LONGER, MORE EFFICIENT SERVICE!



Maximum operating efficiency and durability of GASTONIA Card Screens is assured by thorough examination at each stage of fabrication.

Exacting scientific final inspection guarantees setting points within standard tolerance.

GASTONIA standard type rib or perforated Card Screens are cut and assembled on specially designed precision-built jigs.

When you need Card Screens of any type . . . for any purpose . . . cottons, woolens, worsteds, synthetics, asbestos . . . manufactured, repaired or rebuilt, call GASTONIA.

Years of skilled practical experience are precision-built into all GASTONIA products.

Gastonia TEXTILE SHEET METAL WORKS, INC.
Gastonia, North Carolina

A sheet metal works serving textile mills

- Condenser screens
- Picker screens
- Waste Machine screens
- Card screens
- Cylinders
- Comber aspirators and dampers

COMBER REKEEDLING
Expert reneedling of combs for cottons, worsteds and synthetics.

Spotlights broken ends at loom

With the help of the Loom-Lite the weaver has at his disposal a device which assists him in drawing in correctly and, with a minimum of eyestrain, mending warp breaks.

The device consists of an optical lamp house of tubular construction mounted at one end of the loom breast beam. A rail on which the lamp house is fixed runs along the width of the loom. A mirror placed on the rail can be moved by hand from one end of the rail to the other. By moving the mirror in front of the space where the warp break is, the light from the lamp is beamed through the reed and into the heddles. The lamp can be switched on and off at the mirror. The system is at its best when used on dark colored fabrics which reflect a minimum of light.

Meiners Optical Devices, Ltd., 121 London Wall, London, E. C. 2, England

Do you want more data? Write ◂ or use card on page 253; list J-123

Flat knitting machines have tubular cams

The Supramat SF flat knitting machine, featuring tubular cams, is 62 inches wide and is made in cuts from 4 to 16. This machine racks equivalent to the cut of the machine (a ten-cut machine racks 10 needles), thereby producing a sharp angle in the shape of the knitted fabric. High and low butt needles on both front and back permit more flexibility in design. The pattern drum has a cam with three selectors, and selects low butts, high butts, or all butts automatically as predetermined. The over-all take-up has flexible rolls to compensate for irregularly textured (thick and thin) fabrics. There are 12 yarn carriers, and the machine has a variable speed drive.

The Tricomat S machine has all features of the Supramat SF, plus the feature of striping in on both sides, and it is fully automatic (changes stitch on both sides).

The Suprafix SGV flat knitting machine makes border material and operates at about 30 rounds per minute. This machine has tubular cams (permits making border material which is hollow in the center, like tubular fabric). Other features are a 24-inch knitting surface and racks according to the cut of the machine. Also, it may be used as a hand machine for samples. An "economizer" pattern chain, electric course counters, and needle protectors and stop motions are featured.

Stonehill Knitting Machine Corp., 174 Scholes St., Brooklyn, N. Y.

Do you want more data? Write ◂ or use card on page 253; list J-124

Machine ups cardigan production

A machine known as the Tape-Master cuts cardigans and sews on the button hole and button tapes, all in one rapid operation.

Cardigan sweaters are fed into the cutter unit by a moving belt. After cutting, tapes are then automatically sewed on uniformly without separate puckering.

Ginsberg Machine Co., Inc., 224 Fifth Ave., New York 1, N. Y.

Do you want more data? Write ◂ or use card on page 253; list J-125

Equipment briefs

A fluorescent brightener called Uvitex ER Conc. is primarily interesting for its brilliant white effects on Dacron. It also yields excellent results on acetate, Arnel, cotton, nylon, and rayon. An optical brightener, it offers unusual fastness to light and washing on the above fibers, but is not recommended for use on Orlon, silk, or wool. It may be applied from long liquors by exhaustion, or from an aqueous dispersion by padding.

Ciba Co., Inc., 627 Greenwich St., New York 14, N. Y.

Do you want more data? Write supplier or use card on page 253; list J-201

Textile machine brushes, both standard and special purpose, some of which are made of nylon bristles inserted in Plexiglas, are available in standard designs for use in the upper and lower faller section, pressure roll, nip roll, and coiler head mechanism of the Pin Drafter. Three special brushes are available: coiler calender roll brush, two-sided pressure roll brush, and a sectional underclearer brush designed for insertion beneath the Pin Drafter's nip roll unit.

Woonsocket Brush Co., Woonsocket, R. I.

Do you want more data? Write supplier or use card on page 253; list J-202

A co-binder for use in systems such as textile coating, adhesives, etc., is a hydrocarbon emulsion developed to give superior stability in low pH systems. It features a high melting point of the emulsion solids and wide pH stability. Called Piccopale Emulsion A-22, the agent offers, among other things: resistance to soap, water, acids, and alkalis; pigment binding; soil removal at high pigment volumes; compatibility with thickeners and protective colloids; retained flexibility; good adhesion; and uniform particle size.

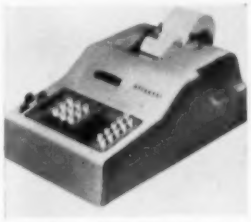
Pennsylvania Industrial Chemical Corp., Clairton, Pa.

Do you want more data? Write supplier or use card on page 253; list J-203

Floor polishing to an extra high gloss is accomplished by a 21" pile fiber polishing cylinder on a vacuum-equipped floor machine called Model E. Eliminating rings and swirl marks, it leaves a uniform wall-to-wall sheen and is especially recommended for lightly soiled corridors, office floors, etc. Self propelled, and equipped with a 1-hp motor, the unit contains a built-in wax bar for one-operation renewal of wax finishes on floors.

G. H. Tennant Co., 721 N. Lilac Dr., Minneapolis 22, Minn.

Do you want more data? Write supplier or use card on page 253; list J-204



Payrolls, invoices, mark-ups, and percentage discounts are performed on the Multisumma, a machine which multiplies, adds, subtracts, and combines these operations to eliminate re-entries. It will also print a tape record which will identify all elements of the calculations by symbols. Capacity is 10 column entries, 11 columns total.

Olivetti Corp. of America, 580 Fifth Ave., New York 36, N. Y.

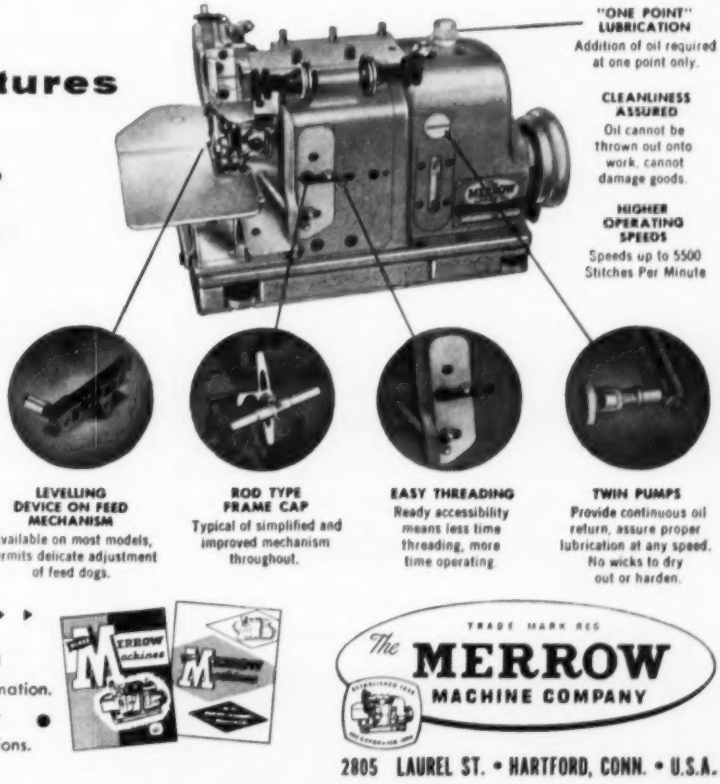
Do you want more data? Write supplier or use card on page 253; list J-205

A liquid level point sensor operates on ultrasonic prin-

Note These Outstanding Features of CLASS MERROW Machines

Featuring *AUTOMATIC LUBRICATION*

See why, for the widest variety of overstitching applications . . . on the broadest variety of knitted and woven materials . . . Merrow Class M Machines provide the most versatile, most reliable means of maintaining high volume, high quality production.


"ONE POINT" LUBRICATION
Addition of oil required at one point only.
CLEANLINESS ASSURED
Oil cannot be thrown out onto work, cannot damage goods.
HIGHER OPERATING SPEEDS
Speeds up to 5500 Stitches Per Minute
LEVELLING DEVICE ON FEED MECHANISM
Available on most models, permits delicate adjustment of feed dogs.
ROD TYPE FRAME CAP
Typical of simplified and improved mechanism throughout.
EASY THREADING
Ready accessibility means less time threading, more time operating.
TWIN PUMPS
Provide continuous oil return, assure proper lubrication at any speed. No wicks to dry out or harden.

"Merrow Class M Machines" illustrates advanced engineering features, provides application information. "Class M Machines for Use on Knitted Outerwear and Underwear" details many common applications.

TRADE MARK REG

The MERROW MACHINE COMPANY

2805 LAUREL ST. • HARTFORD, CONN. • U.S.A.

New M & W Two-Piece Roller Type tenter clip greatly reduces costly down time . . .

AS SHOWN, a single socket-head cap screw and lock washer rigidly hold the two sections of this new clip together. Accurate machining also locks the two parts together and prevents any movement between them.

In case of damage or wear, the top section can promptly be removed and replaced, leaving the bottom of the chain in place on the frame—and operation can be resumed immediately.

- ★ Savings on down time are exceptional.
- ★ All parts are easily accessible and removable parts are interchangeable.
- ★ No expensive rivets to knock out and replace.
- ★ If whole chain needs repair, this clip speeds up removal—reduces repair cost.

Get all advantages we have built into No. 11 Roller Type Tenter Clip since 1940—*plus* this unequalled new two-piece convenience and economy.

"There are no weak links in an M & W Tenter Clip Chain"

Send for complete data . . . no obligation

MARSHALL and WILLIAMS CORPORATION
PROVIDENCE, R. I. • GREENVILLE, S. C. • NEW YORK, N. Y.

ciples to detect the presence or absence of liquid at a predetermined level. There is no spark or radiation hazard from the unit which incorporates instantaneous response, reliability, and infinitesimal power drain, and which operates over a wide range of ambient temperatures (—200 C to 125 C).

Acoustica Associates, Glenwood Landing, L. I., N. Y.

Do you want more data? Write supplier or use card on page 253; list J-206

Variable speed motor drives, in a range from 1 through 5 hp, are available along with automatic controls and other accessories and modifications. Designated 200 and 300 size.

Reeves Pulley Co., Div. Reliance Electric and Engineering Co., 1225 Seventh St., Columbus, Ind.

Do you want more data? Write supplier or use card on page 253; list J-207

The cationic softener Rosoft gives a soft, luxurious finish on Shetland, lambs wool, cashmere, and wool blend sweaters, and will not darken at temperatures up to 300 F.

Richmond Oil, Soap & Chemical Co., Inc., 1041-1043 Frankford Ave., Philadelphia 25, Pa.

Do you want more data? Write supplier or use card on page 253; list J-208

Slippery footing can be eliminated by a coating which can be rolled on. The compound, called NSC, can also be sprayed or brushed on, and is waterproof (can be cleaned with ordinary soaps, powders, or detergents).

Walton-March, 1935 Sheridan Rd., Highland Park, Ill.

Do you want more data? Write supplier or use card on page 253; list J-209

An LP-gas powered sweeper, especially designed for congested areas where exhaust fumes may be objectionable, reduces exhaust fumes to a minimum and assures longer engine life through improved combustion. An LP-gas version of the company's 28" sweeper, and designated Model 50-LP, the unit works 3 to 7 times faster than hand sweeping, and picks up dust and dirt normally missed by a broom. With a 28" main brush, it covers a 40" path with an optional sidebrush.

G. H. Tennant Co., 721 N. Lilac Dr., Minneapolis 22, Minn.

Do you want more data? Write supplier or use card on page 253; list J-210

A plasticizer developed as a modifier and extender for both curing and noncuring latex systems is compatible with natural, neoprene, styrene-butadiene, styrene-acrylonitrile, and acrylic latexes. Called Latex Plasticizer A-12, it exhibits good softening and plasticizing properties, and displays good ageing characteristics and excellent resistance to water and alkalis. Recommended for use in back sizing of decorative fabrics, carpeting, bagging, etc.

Pennsylvania Industrial Chemical Corp., Clairton, Pa.

Do you want more data? Write supplier or use card on page 253; list J-211

A wire connector wrench called Lok-It permits a mechanic to make a "screw-on" wire connector joint so tight the joints cannot be unscrewed with the bare fingers. The wrench fits two sizes of Holub Bakelite wire connectors: Catalog Nos. Hi-4 and Hi-6, which are listed as Pressure Cable Connectors and are U.L. approved.

Holub Industries, Inc., P. O. Box 903, Sycamore, Ill.

Do you want more data? Write supplier or use card on page 253; list J-212

A variable flow rate pump-motor set designed specifically for pilot plant, laboratory, or process work where controlled and varying rates of flow or corrosive

fluids and abrasive slurries are required, is available. Driven by a variable speed source, a relatively linear relationship between speed and output can be obtained. Constant liquid level control is a typical application. Plastics and synthetic and natural rubbers in nearly 700 combinations are used to isolate the fluids from the pump proper.

Vanton Pump & Equipment Corp., Div. of Cooper Alloy Corp., 201 Sweetland Ave., Hillside, N. J.

Do you want more data? Write supplier or use card on page 253; list J-213

An automatic weighing machine (net) which was designed for use in very restricted overhead clearance areas, was originally developed for weighing nylon resin material in 25-lb quantities. On such quantities the machine displayed a cycle time of 7 seconds for weighing and dumping. The weights were made with an accuracy of one-quarter of one per cent. Designated as Model 447-22-NW-1500, the machine consists of an even balance precision industrial scale, an air operated slide valve, a controller, and remote control station.

The Exact Weight Scale Co., 944 W. Fifth Ave., Columbus, Ohio.

Do you want more data? Write supplier or use card on page 253; list J-214

A highly-maneuverable electric fork truck with 2000-lb capacity, Model FT-20, has an over-all length, without forks, of 66½", and a turning radius of only 68". Minimum travel speed with load is 5.2 mph. A ten-degree tilt forward or backward makes the truck especially useful for side-loading pallet body trucks. Standard lift height is 130".

Baker-Raulang Co., Cleveland 2, Ohio

Do you want more data? Write supplier or use card on page 253; list J-215

An electro-mechanical counter which adds, subtracts, and totalizes, will give a zero count if add and subtract pulses are received simultaneously. Called Neuron, the counter will not jam from an incomplete pulse, nor does it require any specific sequence of add or subtract impulses. Good for a life of 300 million counts, the unit has a count rate up to 60 per second, and is either electrically or mechanically reset.

Autron Engineering, 1254 West Sixth St., Los Angeles, Calif.

Do you want more data? Write supplier or use card on page 253; list J-216

Steel armor floor plates without the former bumpiness associated with such plates is now available. Edges are square-cut, and concrete runs through side anchor slots to establish permanent bond with adjoining plates, forming a smooth, level, integrated traffic surface. The safety islands per square foot of plate surface have been increased from 25 to 43, providing more nonskid friction points for sure footing.

Hercules Flooring Co., 247 West 16th St., New York 11, N. Y.

Do you want more data? Write supplier or use card on page 253; list J-217

Hydraulic cylinders with Teflon tubing end seals and piston rod bushing seals free users from the fluid and temperature limitations of leather, synthetic rubber, and composition sealing materials. Use of the tubing end seal has enabled the manufacturer to boost pressure ratings on its entire line of high pressure cylinders from

Guards $1,000,000 Investment

Prevents Loss of Fabrics!

SOME OF THE METAL DETECTED

Tramp metal is a hazard no textile mill can afford! So today, more and more are combatting this threat with special electronic inspection, to protect their investment in costly equipment and fabrics. An installation of RCA Metal Detectors can quickly pay for itself in longer life of machinery, reduced downtime and increased profits.

The new RCA Metal Detector for textile applications is highly sensitive—automatically detects metal pieces, both magnetic and non-magnetic, even though they may be woven or knitted into the fabric. The Detector can be arranged to sound an alarm or stop the moving material. Anyone can operate the equipment—easily installed in your plant under the supervision of an RCA Service Company expert.

Get full particulars—Mail Coupon

MARK OF RCA QUALITY

ELECTRONIC METAL DETECTOR

RADIO CORPORATION of AMERICA
Dept. X-271, Building 15-1, Camden, N. J.
In Canada: RCA VICTOR Company Limited, Montreal

Please send me information on the RCA Metal Detector for textile applications.

NAME _____ TITLE _____

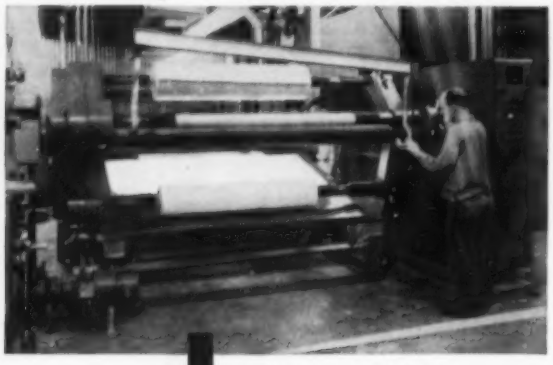
COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

HOBBS-ALQUIST WINDER

Ideal for Glass Fiber



INSTALLATION FOR LEADING GLASS FIBER MANUFACTURER

The Hobbs-Alquist Winder is ideal for winding glass mat and glass fiber fabrics, as well as other types of textiles, plastics, rubber and paper.

It automatically controls tension throughout the winding operation—regardless of the size of the roll. Just turn a dial to the tension you want and the Hobbs-Alquist motor takes over. No stretching or distortion! Roll windup as high as 10 to 1!

The motor is 3-phase, A. C., flange mounted to a gear reducer—entirely independent of the main machine drive. Power utilization is approximately 2 to 3 times greater than other types of winders. Maintenance is low—no brushes or tubes. Compactness saves floor space. Simplicity promotes cleanliness. No dancer rolls. No supervision.

Find out what the Hobbs-Alquist can do for you.
Send for free booklet — "Hobbs-Alquist Winders — Winding Engineering".

HOBBS MANUFACTURING CO.
64-I Salisbury St., Worcester 5, Mass.
Branch Offices & Representatives in Irvington, N. J. Chicago, Cleveland, Greenville, S. C. and Toronto, Can.
WINDERS • SHEARS (Hand & Automatic) • DIE PRESSES SLITTERS

2000 to 3000 psi (shock) and 3000 to 5000 psi (nonshock). The cushion adjusting screw with a self-regulating Teflon seal is interchangeable with the ball check.

Flick-Reedy Corp., 2040 N. Hawthorne Ave., Melrose Park, Ill.

Do you want more data? Write supplier or use card on page 253; list J-218

A pipe joint designed for use with lightwall Schedules 5 and 10 stainless pipe provides a serrated face for the gasket material chosen; the gasket eliminates the leakage associated sometimes with ground joint stainless unions. Bi-metallic construction provides a union joint that can be made up and broken many times without galling.

Speedline Stainless Steel Fittings Div., H. T. Potts Co., 504 Erie Ave., Philadelphia 34, Pa.

Do you want more data? Write supplier or use card on page 253; list J-219

A fork lift truck which is highly maneuverable, is equipped with pneumatic tires, has a 2000-lb capacity, and is powered either with gasoline or LP-gas, has a turning radius of 71" (turns into a minimum intersecting aisle 65" wide). Called the FGF-20, the truck has a 29-hp engine.

The Baker Raulang Co., Sub. of Otis Elevator Co., 1250 W. 80th St., Cleveland 2, Ohio.

Do you want more data? Write supplier or use card on page 253; list J-220

Synchronous motors are started and brought into synchronism safely through the use of EC&M Synchronous Starters (2200-4800 volts). Complete motor protection is given both during starting and running. Should the motor pull out of step because of voltage dip or overload, the field is automatically removed. Resynchronization occurs when the motor re-accelerates the load.

Electric Controller & Mfg. Co., Div. of Square D Co., 4500 Lee Rd., Cleveland, Ohio.

Do you want more data? Write supplier or use card on page 253; list J-221

A punch-card formula control system for continuous flow blending of multiple components, either liquid or solid, is primarily designed to operate from a punched card, but operation may also be from a control panel containing a number of "counter type" controls set to read directly in "percentage of blend," "pounds per hour," or any convenient graduation. The card is punched on a mechanical direct-reading punch, and inserted in a "reader" which translates the card information into feeder or pump drive action.

Graham Transmissions, Inc., Menomonee Falls, Wis.

Do you want more data? Write supplier or use card on page 253; list J-222

Dust and fumes can be removed from the plant atmosphere by the Vertical Rotor Dust and Fume Eliminator which uses a wet method to remove impurities. The unit is easily maintained, can be constructed of corrosion-resistant alloys (or lined where necessary), and features low over-all height to fit into trusses. The unit utilizes a cyclonic action to remove part of the impurities, and two water screens to remove the remaining contaminants.

Schmieg Industries, Inc., P. O. Box 4701, Detroit 34, Mich.

Do you want more data? Write supplier or use card on page 253; list J-223

A dye fixing agent for direct colors, Atcofix #90, may be applied by exhaustion or padding to produce a very marked increase in the over-all wet fastness of many direct colors. Compatible with all of the commonly used

thermosetting resins, it will produce excellent results when run in combination with resins. In addition to its dye-fixing properties, it will produce a moderately firm hand in most fabrics to which it is applied.

Metro-Atlantic, Inc., Centerdale 11, R. I.

Do you want more data? Write supplier or use card on page 253; list J-224

A textile marking pen which has been newly designed is available with a variety of colors of ink. Created expressly for the permanent identification of all fabrics, the pen holds enough ink to mark 10,000 characters one inch high with bright, legible, permanent marks. The ink resists dyeing, finishing, bleaching, fulling, scouring, boil off, and all other modern textile processes.

Mark-Tex Corp., 453 West 17th St., New York 11, N. Y.

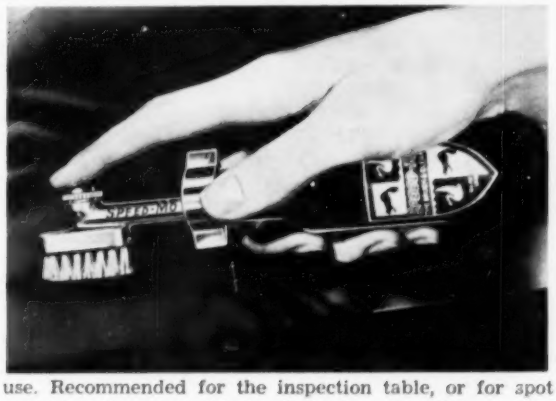
Do you want more data? Write supplier or use card on page 253; list J-225

Chelating agents with primary applications of holding hard water salts and other metallic contaminants in solution and to cause them to dissolve in alkalis, are available to the textile and other industries. The agents, manufactured under the group name of Seqlene, are sugar acid derivatives.

Pfanstiehl Laboratories Inc., 104 Lakeview Ave., Waukegan, Ill.

Do you want more data? Write supplier or use card on page 253; list J-226

Spot removing is quickly accomplished by Speed-Mo, a combination cleaning fluid well and brush. Finger pressure on a convenient button allows the cleaning medium to flow into the nylon brush, which is then ready for



use. Recommended for the inspection table, or for spot removing from any fabrics, it is charged with a quick-drying and nontoxic fluid which will not burn or explode.

Rivet-O Mfg. Co., 500 Read St., Orange, Mass.

Do you want more data? Write supplier or use card on page 253; list J-227

Moisture and oil are condensed out of air lines by the Condensifilter, a unit (available in Models M-30T and M-100T) that combines an internal condenser, disposable filter cartridge, and automatic condensate discharge. The Mag-Pneu-Power trap (Model 501), which is also sold as an external unit, will complement the work of the first unit in discharging the moisture, oil, entrainments, dirt, scale, and other residue removed from compressed air and gas lines.

Hankison Corp., 951 Banksville Rd., Pittsburgh 16, Pa.

Do you want more data? Write supplier or use card on page 253; list J-228

Destructive sticking, build-up, wear, and friction on textile, converting, and packaging machines can be prevented by a Teflon-impregnated glass fiber pressure-sen-

IN A FLASH!

we can prove to you

BLUE STREAK

HAIRON CHECK STRAPS

increase production and reduce costs meaning

MORE PROFITS FOR YOU

Proven Performance A Georgia Mill, using BLUE STREAK HAIRON CHECK STRAPS *exclusively* for one year, reports their strap cost less than in any previous year — even though they increased the speed of their looms during the one-year period! That's because BLUE STREAK HAIRON CHECK STRAPS are cut from Foreign Hairon Leather which has been thoroughly tested and mill proven.

ALSO IMMEDIATE SHIPMENT ON:

ABCO Binder and Front Box Plate Leathers
VELVET Binder and Front Box Plate Leathers

All Types and Shapes of Loom Leathers

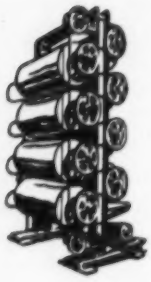
Any of our representatives will be happy to call on you—write or phone:

ERNEST D. KEY, SR., President — 510 Whitehall St., S.W., Atlanta, Ga. Telephone—MUrray 8-1483
ERNEST D. KEY, JR., Executive Vice-President — Monticello, Ga. Telephone 2121
JULIAN S. HARRIS, Vice-President — 232 Altondale Ave., Charlotte 7, N. C. Telephone—Edison 23055
EDWARD H. BRANCH, Secretary — 1508 Poincianna St., Huntsville, Ala. Telephone—Jefferson 4-6204
ALLAN D. SCOTT — R.F.D. #2, Box 506, Selma, Ala. Telephone—Trinity 44118
CHARLES R. DAVIS — 705 Forrest Ave., East Point, Ga. Telephone—Poplar 1-6781
JOHN C. LONG — P. O. Box 4871, Dallas 6, Texas Telephone—Tenison 9416
JAMES D. ELLINGTON, JR. — 2075 Dellwood Dr., N. W., Atlanta, Ga. Telephone—Trinity 2-4083

ATLANTA BELTING COMPANY

508-510 Whitehall Street, S. W.
Atlanta 3, Georgia
Telephones MUrray 8-1483 - 4 - 5
Manufacturers of Leather Belting & Textile Strapping

Now, Drying Cylinders are Cleaned Thoroughly, Rejects Reduced



To clean its copper and stainless steel dyed fabrics dryer, one mill was accustomed to use caustic – applied with a cloth on a broom. Only the lowest four "cans" could be washed – the rest proved inaccessible.

Now, by spraying Oakite Composition No. 24 solution with the Oakite Hot-Spray Unit, every "can" is cleaned thoroughly – even the topmost. Traces of dye and bleach are easily, quickly removed – cylinders restored clean as new – solving also the fabrics reject problem.

Ask your nearby Oakite representative for further money-saving details. Write Oakite Products, Inc., 52D Rector Street, New York 6, N. Y.

OAKITE

Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

NEW The Automated MICRONAIRE

- Speeds up checking two to three times.
- Provides a quick, easy, accurate and authorative measure of fiber fineness.
- Indicates the quality and value of the cotton.
- Indicates the dyeing properties.
- Measures the maturity of cotton.
- Predicts the spin-ability of cotton.
- Forecasts the appearance of the yarn and cloth by indicating the number of neps to be expected.

For NEW Book "Advantages and World-Wide use of the Micronaire in all segments of the Cotton and Textile Industries"

Write to Dept. 29 —THE SHEFFIELD CORPORATION

Dayton 1, Ohio, U. S. A.

7515R

the SHEFFIELD corporation

manufacture and measurement for mankind

sitive tape called Temp-R-Tape TG. The tape has a —100 F to 400 F effective temperature range.

The Connecticut Hard Rubber Co., 407 East St., New Haven 9, Conn.

Do you want more data? Write supplier or use card on page 253; list J-229

A punched tape typewriter will type from tapes at a rate of 120 words per minute. The machines are available in units which will either punch tapes, write from tapes, or do both. Among the suggested uses are those pertaining to customer orders and invoices. A customer's master tape may be placed in the typewriter and used to type

a sales order automatically, with manual insertion of variable data. Simultaneously a new tape can be prepared which may be later used to type the shipping advice. Invoicing from the sales order follows if desired, and the tape used to create punched cards.

Remington Rand Div., Sperry-Rand Corp., 315 Fourth Ave., New York 10, N. Y.

Do you want more data? Write supplier or use card on page 253; list J-230

Dripping condensate from cold water lines which pass through humid atmospheres, and other such conditions promoting dripping, is stopped by NoDrip tape. Available either in tape form or in troweling consistency for tanks, walls, etc., the insulation can be painted with water emulsion paints.

J. W. Mortell Co., Kankakee, Ill.

Do you want more data? Write supplier or use card on page 253; list J-231

Ultrasonic emulsifiers which use the fluid-dynamic forces of the liquids themselves to produce the sound waves are available in four models. The Rapisonic has an output up to 350 gallons per hour and handles emulsions of high and low viscosity; The Autosonic gives a continuous supply of emulsion automatically geared to process volume; the Dispersonic is designed to handle powders in liquids or emulsions of an abrasive nature; the Minisonic is for laboratory or pilot plant use and is similar to the Rapisonic in principle of operation.

Sonic Engineering Corp., 146 Selleck St., Stamford, Conn.

Do you want more data? Write supplier or use card on page 253; list J-232

A battery-powered sweeper of industrial capacity is available with a 17" main brush — six-vane semi-floating brush reel with 12 brushes easily attached or detached, reversible end for end. Brush pressure is manually controlled. Called the 2400 Electrisweeper, it also contains a 19" diameter side sweeper, full floating and adjust-

able. Dust filter automatically empties into separator chamber — not necessary to remove dust filter for cleaning. Runs eight hours without battery charging.

Wilshire Power Sweeper Co., Elgin, Ill.

Do you want more data? Write supplier or use card on page 253; list J-233

The water fountain shown in the accompanying illustration is a recent addition to the Halsey-Taylor line of newly designed face-mounted and semi-recess fountains. These models have all been streamlined in design and re-styled in color, so as to more fittingly supplement modern architectural planning.

Halsey W. Taylor Co., 137 N. St., N.W., Warren, Ohio.

Do you want more data? Write supplier or use card on page 253; list J-244

A dry fluid drive (for one application see TEXTILE INDUSTRIES for September 1956, p. 209) called Flexidyne is now available in larger sizes, with the drives being recommended for use with motors up to 75 hp at 1750 rpm.

Dodge Mfg. Corp., Mishawaka, Ind.

Do you want more data? Write supplier or use card on page 253; list J-234

A power tool for tensional strapping, the PNE Stretcher, has unlimited take-up, is fast, light, and quiet. Available for every tensional width — 3/8", 1/2", 5/8", and 3/4" straps — the tool may be adjusted to all gauges in the width it handles. Particularly suited for strapping operations in such industries as paper, textiles, etc., it comes equipped with eight feet of air hose and coupling.

Brainard Steel Div., Sharon Steel Corp., Warren, Ohio.

Do you want more data? Write supplier or use card on page 253; list J-235

A "universal" textile softener, Ahcovel X57, performs effectively on nearly every textile fiber and is of considerable merit in both pure and resin finishes. Whether used alone or as a plasticizer for resin finishes, it does not contribute to loss in tensile strength or lower crease resistance. Will not cause odors to be formed on the fibers, resists scorching and yellowing.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence, R. I.

Do you want more data? Write supplier or use card on page 253; list J-236

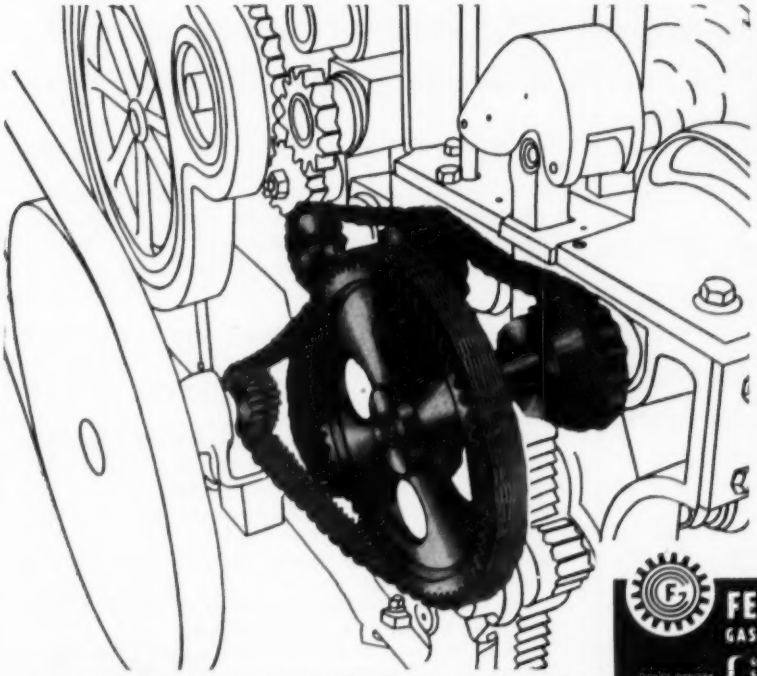
Moth resistance in paper form for packaging clothing, rugs and other textiles, plus other items (except food) subject to insect damage, is available. Called Cedar Breeze, the moth paper is chemically treated with a vaporizing insecticide which kills moths, moth eggs and larvae, carpet beetles, and silverfish.

Daubert Chemical Co., 333 North Michigan Ave., Chicago, Ill.

Do you want more data? Write supplier or use card on page 253; list J-237

A nylon bleach and scouring compound is designed to assist the dyer in overcoming excess yellowing of nylon fabrics. The compound removes fat, oils, and waxes used in most sizes, and which left to decompose, cause yellow-

CHAIN DRIVES FOR SACO-LOWELL PICKERS



BY FERGUSON

Fluted Calender Roll Chain Drive and Driving Shaft Chain Drive especially made for the Saco-Lowell Picker.

We make textile and industrial gears for every purpose to your satisfaction.

For information or quotation contact your nearest Sales Engineer or write, without obligation, P. O. Box 511, Gastonia, N. C.

FERGUSON GEAR COMPANY
GASTONIA, NORTH CAROLINA • TEL. UN 4-2626

SALES OFFICES { GREENSBORO, N. C. · GASTONIA, N. C. · GREENVILLE, S. C. · LA GRANGE, GA. · R. T. GLADDEN · R. W. LYNCH TEL. 3-7662 DENVER, N. C. · HAROLD H. HARRISON TEL. 3-4198 · JOHN FERGUSON TEL. 1040, P. O. BOX 986

MEMBER AMERICAN GEAR MANUFACTURERS ASSOCIATION

Would you give for fewer ends down?

... If some of your traveler cleaners are missing or set wrong, you may be having ends down trouble that's easy to correct. DIAMOND FINISH Pin Traveler Cleaners cost only a half cent each. You can install them yourself, or we'll do it for two cents including the Cleaner.

WHITINSVILLE (MASS.) SPINNING RING CO.
Makers of Spinning and Twister Rings since 1873
DIAMOND FINISH

Rep. for the Carolinas & Va.: W. K. SHIRLEY, P. O. Box 406, Belmont, N. C.
For Ala., Ga., & Tenn.: P. C. EVERETT, 369 Meadowbrook Dr. NE, Atlanta

Gibbs Shuttle Truing Machine

- Accurately renews thread and bottom shuttle grooves and feeler slots
- Produces perfectly matched shuttles for box work
- In use over 20 years by the Largest as well as the Smallest Synthetic Fabric Weavers.

Textile Specialty Co., Inc.

P. O. Box 1297, Greensboro, N. C.

MANUFACTURERS AND MANUFACTURERS AGENTS OF SPECIALTIES FOR TEXTILE MILLS

ing. With the use of Nyl-Scour most nylon fabrics can be processed without additional conventional bleaches. Suitable for use in dyebeck or jig and does not require special handling.

Aquex Development & Sales Corp., Whippany, N. J.

Do you want more data? Write supplier or use card on page 253; list J-238

A lighted pushbutton switch which combines the indicator light with the switch to conserve space has snap action and comparatively high force differential which helps prevent accidental actuations. The indicator lamp socket is fastened to the outer body of the switch and does not move when the button is pushed.

Minneapolis-Honeywell Regulator Co., Micro Switch Div., Freeport, Ill.

Do you want more data? Write supplier or use card on page 253; list J-239

A nylon warp size composed of a balanced blend of binders and waxes is compounded to provide a non-corrosive lubricant and size for nylon and Dacron yarns intended for marquisette constructions. Yarns so treated with Ahco are sufficiently lubricated for proper static-free weaving, and are sealed to prevent snagging or peeling under the shedding and picking motions. The size will not shed or build up during the weaving operations.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence, R. I.

Do you want more data? Write supplier or use card on page 253; list J-240

A device for maximum protection of automatic machinery against damage arising from load changes continuously monitors power drawn by any electrically-driven machine. By sensing minute changes in operating loads, and functioning within milliseconds, the Monitron stops a motor, releases a clutch or applies a brake faster than an operator can reach a control. Simultaneously it signals a warning, thus minimizing downtime. The unit senses load increases from pile-ups, misfeeds, tool dullness, overhard or oversize stock, faulty lubrication, and other causes.

Sperry Products, Inc., Shelter Rock Road, Danbury, Conn.

Do you want more data? Write supplier or use card on page 253; list J-241

A continuous filament rayon fiber with increased strength characteristics is available in 600 and 900 deniers. Called Super Rayflex, the yarn is 40% stronger than regular Rayflex, with 4.5 grams per denier conditioned strength compared to 3.2 grams per denier. It is made primarily for industrial uses, particularly for reinforcing applications with laminates involving paper, rubber, plastics, etc.

American Viscose Corp., 1617 Pennsylvania Blvd., Philadelphia 3, Pa.

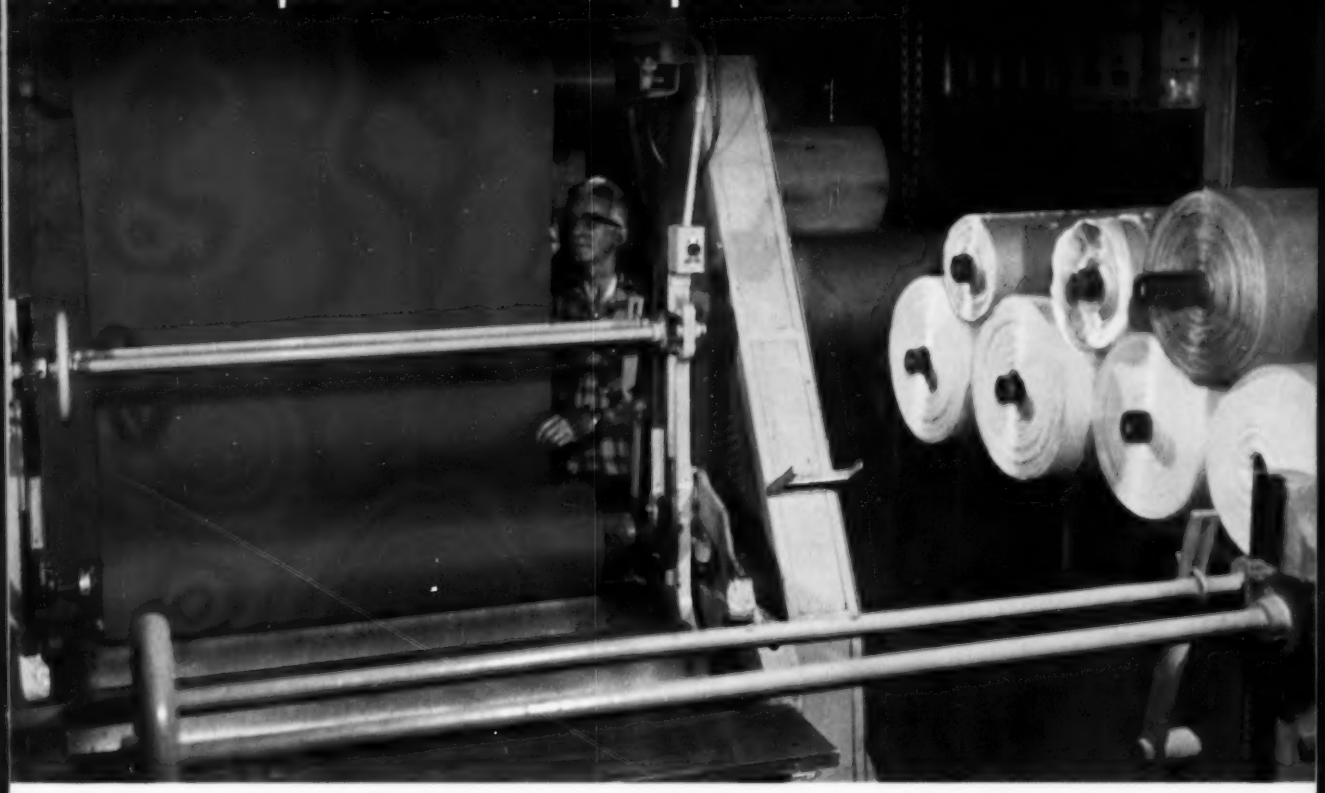
Do you want more data? Write supplier or use card on page 253; list J-242

Very bright yellowish orange shades in the dyeing or printing on cellulosic fibers are obtained with Procion Brilliant Orange G. Registers good shade stability in the presence of weak acids or alkalis, good light and wash fastness in pale shades, and good fastness to chlorine bleaching. It builds up strongly with increasing redness of tone. A high degree of fastness is maintained at all depths. There is no significant change on cotton or rayon fabrics which have been resin-finished.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence 1, R. I.

Do you want more data? Write supplier or use card on page 253; list J-243

new trend to blends of "Dacron*" and cotton gives Thermosol process new importance



Du Pont research shows that it gives heavy shades with "Latyl" dyes at lower cost*

As your finishing of blends of "Dacron" polyester fiber and cotton grows with the trend, you will want to consider the major advantages of the Thermosol process for continuous dyeing of these fabrics. The process uses standard equipment—a padder for applying Du Pont's "Latyl" dyes, a dryer and a standard resin curing oven.

Results at the Defiance Bleachery, Barrowsville, Mass., and new research by Du Pont show that this process, using "Latyl" dyes developed by Du Pont specifically for "Dacron," offers these superior results over batch dyeing or other methods:

- Fastness on the "Dacron" portion of the blend equal to that of vats on the cotton portion.
- No carriers needed, eliminating carrier cost and carrier spotting.
- Simultaneous heat setting and dyeing.
- No rope marking.
- Rapid processing—a continuous method with speeds up to 100 yards per minute.

Along with these advantages, this continuous process saves money because of the efficiency of the equipment, shorter processing time and lower color and chemical costs.

We will gladly send complete information. Write E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyes and Chemicals Division, Wilmington 98, Delaware.

*REG. U. S. PAT. OFF.

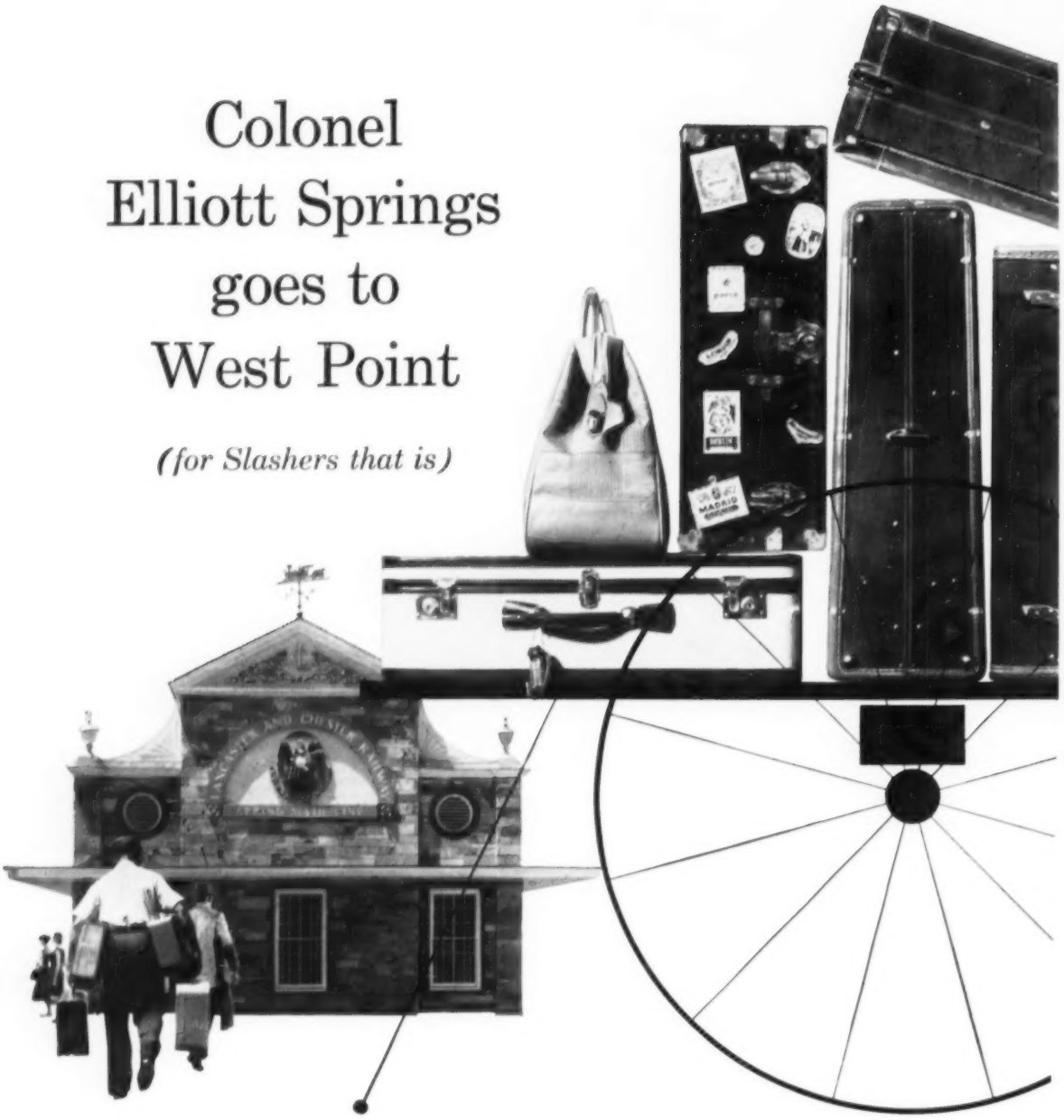
DU PONT
REG. U. S. PAT. OFF.

Better Things for Better Living . . . *through Chemistry*

Du Pont Dyes

Colonel Elliott Springs goes to West Point

(for Slashers that is)



When Col. Elliott Springs wanted extremely versatile, high-production slashers, he went to West Point Foundry & Machine Company. He ordered 25 Multi-Cylinder Slashers to replace the 32 operating in five of his mills. As a result, production records show that the 25 West Point Foundry slashers are slashing *better* warp in volume equal to 40 of the old style slashers he replaced. Loom stops are less. High quality is consistent—a necessity for meeting Springs Cotton Mills' exacting standards. Put West Point Foundry's engineering experience and know-how to work on your slasher problems. *It's a one way ticket to bigger profits.*

You have a choice with West Point Foundry. West Point makes both MULTI-CYLINDER and AIR-DRI® slashers.

WEST POINT Foundry & Machine Company

WEST POINT, GEORGIA

Use this opportunity to keep abreast of new information dealing with machinery, equipment, supplies and services available to your mill.
To obtain more information on advertisements, print the name of the advertiser in the space provided on the card below.
Free booklets and more information on new equipment items may be had by entering their key numbers in the space designated for this use.
This service is made possible by the advertisers of TEXTILE INDUSTRIES as an aid to mill men who want to keep well informed on new developments in the industry. We cannot, however, extend this service to you unless you print or write legibly your name and position, the name of your firm, and its address on the card.
Four cards are provided in case others in your plant would like information . . . and TEXTILE INDUSTRIES pays the postman!

TI'S INFORMATION CENTER

BOOKLETS
NEW EQUIPMENT
ADVERTISEMENTS

SEPTEMBER, 1957

Please send, without obligation, additional information on New Equipment and booklets described (give Key numbers) .....

.....

.....

Please send more information on advertisements (give Company Name)

.....

.....

Name ..... Position .....
Company Name .....
Address .....
City ..... State .....

SEPTEMBER, 1957

Please send, without obligation, additional information on New Equipment and booklets described (give Key numbers) .....

.....

.....

Please send more information on advertisements (give Company Name)

.....

.....

Name ..... Position .....
Company Name .....
Address .....
City ..... State .....

SEPTEMBER, 1957

Please send, without obligation, additional information on New Equipment and booklets described (give Key numbers) .....

.....

.....

Please send more information on advertisements (give Company Name)

.....

.....

Name ..... Position .....
Company Name .....
Address .....
City ..... State .....

SEPTEMBER, 1957

Please send, without obligation, additional information on New Equipment and booklets described (give Key numbers) .....

.....

.....

Please send more information on advertisements (give Company Name)

.....

.....

Name ..... Position .....
Company Name .....
Address .....
City ..... State .....

INDUSTRIES...FILL IN AS DIRECTED AND DROP IN MAIL BOX!

POSTAGE WILL BE PAID BY TEXTILE

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

TEXTILE INDUSTRIES

806 PEACHTREE ST., N. E.

ATLANTA 8, GA.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

TEXTILE INDUSTRIES

806 PEACHTREE ST., N. E.

ATLANTA 8, GA.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

TEXTILE INDUSTRIES

806 PEACHTREE ST., N. E.

ATLANTA 8, GA.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 582, SEC. 34.9, P. L. & R., ATLANTA, GA.

TEXTILE INDUSTRIES

806 PEACHTREE ST., N. E.

ATLANTA 8, GA.

HELPFUL BOOKLETS FREE!

9-1 STROBOTAC. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., 275 Massachusetts Ave., Cambridge 39, Mass.

9-2 TAPE STICKS ON BOTH SIDES. Bulletin tells how to save with "Scotch" Brand pressure tape. Minnesota Mining & Mfg. Co., Dept. OU-67, St. Paul 6, Minn.

9-3 MATCHED V-BELTS. Details on V-Belts that stay matched from factory to drive. Goodyear, Industrial Products Div., Akron 16, Ohio.

9-4 Lubricants for Textiles. Working samples available of Ben Boy Bearing Lubricants, Spindle Oils, Non-Melting Oils, Twister Lubricants. Write Georgia-Carolina Oil Co., Box 101, Macon, Ga.

6-9 CHEMIGUM LATEX. Details about uses for this versatile latex and other resin and rubber latices. Goodyear, Chemical Div., Akron 16, Ohio.

9-6 BASE DETERGENT ACIDS. Bulletin tells how new TENN-ACIDS offer simple and practical method for mills to prepare concentrated, low cloud point detergents based on alkyl aryl sulfonates. Tennessee Corp., Marketing Research & Development Dept., 1330 W. Peachtree St., Atlanta 9, Ga.

9-7 UNIVERSAL CARD COILER. Folder gives complete specifications. McDonough Power Equipment, Inc., Machine & Foundry Div., McDonough, Georgia.

9-8 SLASH 450 FPM. Slasher drive controls located 20 feet away, gives up to 25% more production. Bulletin 4-2311, Reliance Electric & Engineering, Dept. 208A, Cleveland 10, Ohio.

9-9 FINISHING ROLLS. "Job engineered" rolls give greater life, more satisfactory service. Write Dayton Rubber Co., Holfast Div., 1486 Lakewood Ave., Atlanta, Ga.

9-10 WOOL AND WORSTED WINDER. Six advantages of Model 102. Bulletin A-95, Foster Machine Co., Westfield, Mass.

9-11 10 SOLVAY TECHNICAL BULLETINS. Cover properties, use, storage, handling, etc., of various products. Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, New York.

9-12 METAL DETECTOR. Spot troublemakers before they harm equipment or fabrics. Radio Corp. of America., Dept. S-271, Building 15-1, Camden, N. J.

9-13 FR-S LATEX. Information on quality controlled, "pedigreed" latex. Synthetic Rubber and Latex Div., Dept. A., Firestone Tire & Rubber Co., Akron, Ohio.

9-14 DYEING OF "ORLON". "Sevron" offers outstanding lightfastness and wetfastness. Du Pont Organic Chemicals Dept., Dyes & Chemicals Div., Wilmington 98, Del.

9-15 CARD DRIVE. Details on rugged, safe, hi-speed individual drive. Bulletin 301-a, Southern States Equipment Corp., Hampton, Ga.

9-16 WRAP UP LINT PROBLEMS. Automatic lint filters remove lint from air, winds it into desposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

9-17 UREA, FORMALDEHYDE. Literature on urea, formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical and Dye Corp., 40 Rector St., New York 6, New York.

9-18 ACID MORDANT BLUE B. Details on Acid Alizarine Blue B for bright navy shades. Zinsser & Co., Inc., Hastings on Hudson 6, New York.

9-19 MOVE KEY MEN QUICKLY. Industrial airplanes help keep your key men from being stuck on one job at a time. Southern Airways Co., Atlanta, Ga.

9-20 TOUCH SCALES. The story on scales that are sensitive but not thin-skinned. Fairbanks, Morse & Co., Dept. TI 8, 600 S. Michigan Ave., Chicago 5, Ill.

9-21 LARGEST SLASHER ORDER IN HISTORY. Find out why Springs Cotton Mills bought 25 multi-cylinder slashers. West Point Foundry & Machine Co., West Point, Ga.

9-22 ROTO-CONERS. Fact and figures on Leesona Roto-Coners. Universal Winding Co., P. O. Box 1605, Providence, R. I.

9-23 ENCLOSED SWITCHES. Keep tension uniform to winding reel. Catalog 83, Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

9-23 SHUTTLE CHECK. Large frictional areas reduce wear on straps. Draper Corporation, Hopedale, Mass.

9-25 VIBRALON FOR HOSIERY. Greater snag resistance, dullness, warmth and absorbency. W. F. Fancourt Co., 519 S. Delaware Ave., Philadelphia 47, Pa.

9-26 SAFE MATERIALS HANDLING. Kennett shipping receptacles are hard, smooth, indestructible. National Vulcanized Fibre Co., Wilmington 99, Del.

9-27 CUT CHLORINE COSTS. How shipping can make the difference in price. Wyandotte Chemicals Corp., Wyandotte, Michigan.

9-28 LOOM PARTS. Smooth, dependable performance; longer life, greater shock resistance. Denman Textile Rubber Co., 2878 2nd St., Cuyahoga Falls, Ohio.

9-29 "NEUTRONYX 600". Booklet details cost savings through use of this non-ionic surfactant. Onyx Oil & Chemical Co., 90 Warren St., Jersey City 2, N. J.

9-30 DESIZER. Booklet describes Exsize-T, and unusually efficient desizing agent. Pabst Brewing Co., Merchandise Mart, Chicago 54, Illinois.

9-31 TEXTILE BRUSHES. Describes complete line of brushes for all departments of mill. S. A. Felton & Son Co., Manchester, N. H.

9-32 CONTROL CENTERS. Manual gives special attention to planning and specification. Square D Company, 4041 N. Richards St., Milwaukee 12, Wisconsin.

HELPFUL BOOKLETS FREE!

OPENING THROUGH ROVING

R-1 Lummus Pepper-Shaker Opener —Gives complete details and photographs Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

R-2 Static Elimination — How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

R-3 Card Grinding Information — Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

R-4 Card Clothing — Describes Strip-O-Matic Card Clothing. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia, Pa.

R-5 Versa-Matic Drawing Frame — Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.

R-6 Sargent Opener—Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

R-7 Ball Bearing Comb Boxes — Describes working principle, shows cut-away Views, Southern States Equipment Corp., Hampton, Georgia.

R-8 Feathertouch Drafting — Describes "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

R-9 Automatic Weighing Feeders — Tandem Weighing Feeder produces webs, mats and felts of continuing accuracy. W. D. Dodenhoff Co., Inc., Box 178, Greenville, S. C.

R-11 Flexidyne Individual Card Drive—Describes operating principles, includes prices. Dodge Mfg. Co., Mishawaka, Indiana.

R-13 Tips On Carding Procedure — Very helpful monthly bulletin concerns card operation and care. Ashworth Brothers, Fall River, Mass.

R-14 Pneumastop For Fly Frames—Brochure shows type of installation and method of operation. Pneumafil Corp., Charlotte 8, N. C.

R-15 Advantages of Aldrich Pickers —Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

R-16 Universal Card Coiler—Gives 12 reasons why it's "the best," includes dimensions. McDonough Power Equipment, Inc., McDonough, Ga.

R-17 New Condenser Tape — Describes Supr-o-O-Tape an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

R-18 Coilers and Conversions — Describes new complete coilers and conversions for cards. Southern States Equipment Corp., Hampton, Ga.

R-19 84" Woolen Card — Includes picture, floor plan, description, and technical details. Davis & Furber Machine Co., North Andover, Mass.

SPINNING—TWISTING—WINDING—SPOOLING—WARPING—THROWING

R-101 Spinning News — Up-to-the minute news on spinning equipment. Roberts Co., Sanford, N. C.

R-102 Plastic Bobbins — Improved quality and efficiency in production described. Engineered Plastics, Inc., Gibsonville, N. C.

R-103 Products For Spinning and Weaving—Complete line, applications, advantages shown. Dayton Rubber Co., Textile Div., Dayton, Ohio.

R-105 Spindle Oil — "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

R-107 Tru-Draft Creels — Complete details on Tru-Draft Umbrella Creel. The Bouligny Co., P. O. Box 2115, Charlotte, N. C.

R-108 High Speed Automatic Quiller —Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

R-109 Motor Control—Uses and advantages of control for roving and spinning frames. Cutler-Hammer, Inc., Milwaukee, Wis.

R-110 Stop Frame On Roving Failure—Adamstop instantly detects roving failures, stops frame. Adams, Inc., 209 East Stone Ave., Greenville, S. C.

R-111 Automatic Cop Winder—Tells how high production with less labor is possible. F. A. Lazenby Co. 3106 Elm Ave., Baltimore 11, Md.

R-112 Bahnson Packaged Modernization—Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

R-113 Sectional Warper — Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

R-114 Conical Rings and Flyers — Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

R-115 Precise Winding Machine — For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

R-116 Automatic Cleaning Equipment—Working details and advantages of the Tri-Rail Cleaner. American Monorail Co., 13107 Athens Ave., Cleveland 7, Ohio.

R-117 Aluminum Section Beams — Lists advantages, includes prices and delivery schedules. Hayes Industries, Inc., Jackson, Mich.

R-118 Lubricants For Textiles — Samples of Ben Boy Bearing, Spindle, Twister Lubricants and Non-Melting Oils. Georgia-Carolina Oil Co., Box 101, Macon, Ga.

R-119 Custom Made Thread Guides—Includes composition, properties, specifications of all designs. American Lava Corporation Chattanooga 5, Tenn.

R-120 Spinning Frame Conversions—Big-package, new-frame results at half the cost. Meadows Mfg. Co., Station A., Atlanta, Ga.

R-121 Collecto-Vac — New development collects lint, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.

R-122 Static Eliminator For Warpers-Slashers-Creels—Increased production, improved quality, reduced waste. The Portland Co., 22 Fore St., Portland, Maine.

R-123 Spinning and Twister Rings — Complete details, pictures, price lists. Whitinsville Spinning Ring Co., Whitinsville, Mass.

R-124 Double Deck Twisters—High speed twisting of silk, rayon, nylon to finest deniers. U. S. Textile Machine Co., Scranton 8, Pa.

R-125 Lint-Free Creel—Complete details and pictures of the new Airfoil Design. Pneumafil Corporation, Charlotte 8, N. C.

R-126 Gear Bulletins — Cover products and gears for the complete textile mill. Precision Gear & Machine Co., 2001 N. Tryon St., Charlotte 2, N. C.

R-127 Headless Package Twister — Eliminates Redrawing—builds tapered or straight-end headless packages. U. S. Textile Machine Co., Scranton 8, Pa.

R-128 Suction Cleaning System—Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

R-129 Facts About Your Flyers and Spindles—Advantages of smooth flyer and spindle operation. Ideal Machine Shops Bessemer City, N. C.

(Continued Next Page)

Every plant has some areas where Corrosive Atmospheres deteriorate luminaires — CAN CREATE SERIOUS HAZARDS LIKE THIS!

In plants where corrosive atmospheres exist, LUMINAIRE REPLACEMENT COSTS NOW CUT AS MUCH AS 75%

NEW, CORROSION RESISTANT LUMINAIRES, by Westinghouse, now made with stainless steel — brass and porcelain enamel outlast conventional luminaires 3, 4 and 5 times!

Contaminating vapors, corrosive steam, excessive moisture — like those occuring in *virtually every* processing operation — can *ravage* the materials used in making most, common, industrial luminaires!

This *frequently* causes *exhorbitant* luminaire-replacement costs! — the constant threat of short-circuits! — the costliness of corroded substance dripping into product-in-process! — *even the danger of luminaires dropping into machinery — onto workers themselves!*

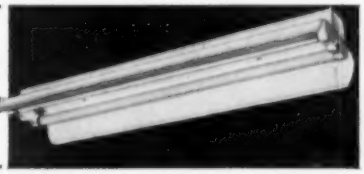
As a result, more and more companies have been installing Westinghouse Corrosion Resistant Luminaires — therby avoiding these unnecessary hazards! — and *reducing luminaire-replacement costs as much as 75%.*

These Westinghouse Corrosion Resistant Luminaires are made with end-plates of nickel-plated brass, stainless-steel hardware, porcelain-enameled channels and reflectors, heavy-duty brass-enclosed lamp-holders — with *all* components as *corrosion-free* as modern metals permit!

Your near-by Westinghouse Lighting Specialist is *thoroughly prepared* to survey *your* plant operations! — to recommend, "*squarely,*" *whether or not your company would benefit* from Corrosion Resistant Luminaires! *Call* him, or your Westinghouse Distributor, *today*! It *may* save you *appreciable* amounts of money!

J-04424

NEW! CORROSION RESISTANT LUMINAIRES



YOU CAN BE SURE...IF IT'S

Westinghouse®

HELPFUL BOOKLETS FREE!

R-130 Twisting Machinery—Information on novelty yarn twisters. Collins Brothers Machine Co., 647 Roosevelt Ave., Pawtucket, R. I.

R-132 Traveling Cleaners—Describes improved frame and room cleaners. Parks-Cramer Co., Fitchburg, Mass.

R-133 Lapless Endless Spinner—Full information available. Ton Tex Corporation, 31 Columbus Ave., Englewood, N. J.

R-134 Textile Metal Products — Describes spinning and twisting cylinders, card screens. Jenkins Metal Shops, Inc., Gastonia, N. C.

R-135 Worsted Spinning — Describes five stages from top to yarn. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

R-138 Warper Beams — High speed beams for rayon tire cord and cotton. U. S. Bobbin & Shuttle Co., Lawrence, Mass.

R-139 Spindle Oiling Machine—Features and advantages noted. Wicaco Machine Corp., 4800 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

R-141 Handy Spinning Reference — Shows traveler speeds, sizes of ring flanges. Victor Ring Traveler Co., Providence, R. I. and Gastonia, N. C.

R-142 Unirail Uptwister — Higher yarn quality and better packages at faster speeds. Universal Winding Co., P. O. Box 1605, Providence, R. I.

R-143 Vacuum Scavenger System — Application to drawing, roving and spinning processes, Spinsavac Corporation, 1438 South Tryon St., Charlotte, N. C.

R-144 Precision Textile Winding — Tensions and Density Control for winding rubber cones. Kidde Mfg. Co., 35 Farrand St., Bloomfield, N. J.

R-145 Roller Bearing Spindles — Pictured in cut-away views, advantages described. The Marquette Metal Products Co., 1145 Glenwood Ave., Cleveland, Ohio.

R-146 Cone Winder—Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

R-147 Short Cut To Staple Fiber Spinning—Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

R-148 Weaver's Knotter — Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

R-149 Textile Roll Coverings — Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

R-150 Lint-Free Motor — Describes motor for constant speed a-c driven pickers, roving frames, spinning and twisting frames, etc. Westinghouse Electric Corp., P. O. Box 2278, Pittsburgh 30, Pa.

R-151 Tape For Driving Spindles — Describes banding for spindle drives on twisting, roving and spinning. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

R-152 Giant Aluminum Cotton Beams —Describes 38 x 54" section beams for cotton. Hayes Industries, Inc., Jackson, Mich.

R-153 Woolen Spinning Frame — Colored picture, complete details Davis & Furber Machine Co., North Andover, Mass.

SLASHING—WEAVING—CLOTH ROOM—TUFTING

R-201 Looms — Describes "World's Largest Line of Looms." Crompton & Knowles Loom Works, Worcester 1 Mass.

R-202 Counting And Measuring Devices—Wide range of counting devices for all types of textile machinery. Veeder-Root, Inc., Hartford, Conn.

R-203 Loom Supplies — Describes complete line. E. H. Jacobs Northern Division, The Bullard Clark Co., Danielson, Conn.

R-204 Innovation In Textile Drying—Details on Steam or Gas "Hot Air" Slasher. J. O. Ross Engineering Corp., 444 Madison Ave., New York 22, New York.

R-205 Slashing Hints—Covers complete slashing operation. Seydel-Woolley & Co., 748 Rice St., N.W., Atlanta, Ga.

R-206 Loom Production Charts — Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

R-207 Aluminum Beams—Describes lightweight beams for textiles, Hayes Industries, Inc., Jackson, Mich.

R-208 The Story Of Starches — History and information on manufacture and use of starches. National Starch Products, Inc., 270 Madison Avenue, New York 16, N. Y.

R-209 Loading System — Pneumatic loading system for Saco-Lowell slasher. The Foxboro Company, Foxboro, Mass.

R-211 Steel Warp Beams—Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

R-212 Penford Gums In Textiles — Describes excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

R-213 Saco-Lowell Positrol Slasher—Includes advantages, photographs, cutaway drawings. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

R-214 Rotary Unions—Cut costs, get better sealing on can dryers. Perfecting Service Company, 332 Atando Ave., Charlotte, N. C.

R-215 Hot Air Slasher — Describes advantages and capacities, includes specifications. West Point Foundry & Machine Co., West Point, Ga.

R-216 Air Slasher Dryer — Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

R-217 Butt-Tacking Sewing Machine —Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

R-218 Loom Reed Booklet — Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

R-219 Cocker Equipment—Information on warp sizer, beam warper, creels, tensions, back-winders, etc. Cocker Machine & Foundry Co., Gastonia, N. C.

R-220 Chemical Data Sheets—Available on a full range of chemicals. Nopco Chemical Co., Harrison, N. J.

R-221 Aligning Lays—Setting instructions for step-by-step aligning. Draper Corporation, Hopedale, Mass.

R-222 Baling Presses — Complete line of balers for all materials. Economy Baler Co., Ann Arbor, Mich.

R-223 Tufting Machines — Describes automatic pattern attachment. Cobble Bros. Machinery Co., Inc., River Road, Chattanooga, Tenn.

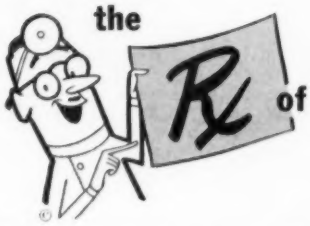
R-224 Amco Heliclone Loom Cleaner—Tells how to eliminate the job of cleaning looms manually. American Moistening Co., Providence, R. I.

R-225 Hermas Textile Machines — Information on Unwind Stand, Automatic Guiding Unit, Jet Mixer, Selvage Trimming, etc. Hermas Machine Co., Hawthorne, N. J.

R-226 Prevent Fabric Distortion — How to eliminate distortion and where to check for it. Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass.

(Continued Next Page)

Moretex



the Rx of Chemicals

Purity Like a doctor's prescription, Moretex Chemicals are held to rigid standards of purity. Moretex Polyethylenes for instance contain none of the waxes commonly added to cheaper products. Many Moretex products are made in several grades but in every case the ingredients and limitations are clearly specified.

Equipment Moretex Chemicals are compounded in modern precision equipment in which all processes can be accurately controlled.

For exact results as you want them, standardize on Moretex Products.

MORETEX *Chemical Products,* INC.

ESTABLISHED 1908 MANUFACTURING CHEMISTS SPARTANBURG, SOUTH CAROLINA

A DEPENDABLE SOURCE OF SUPPLY

THOMASTON Fabrics

Industrial Textiles

such as:

TIRE FABRICS
HOSE AND BELT DUCKS
CHAFERS
LAUNDRY TEXTILES
SEWING TWINES
CORDAGE
YARNS
COATING FABRICS
SHEETINGS

●

other available facilities:

BLEACHING
DYEING
FINISHING
SEWING

We solicit your inquiries

THOMASTON MILLS

THOMASTON • GEORGIA
NEW YORK OFFICE: 40 WORTH STREET
Phone: WOrth 2-6730

INTER-PLANT SHIPPING

Been looking into the economy of canvas hampers? You owe it to yourself to give some consideration to

Lane's Style 67

UTILITY Style 67 has proven extremely versatile throughout the whole inter-plant shipping operation, handling everything from raw goods to finished product.

CONVENIENCE Furnished with hinged wooden top and locking hasps, it nests when empty or supports other hampers when loaded for space-saving both in transit and in storage.

ECONOMY Its completely smooth interior prevents snagging or chafing of delicate fabrics or yarns. Style 67 is light weight; cuts shipping costs—makes hauling easier. Made from the finest leather-reinforced duck over special spring steel frame, plus the manufacturing know-how of Lane's sixty years of experience. It has an outstanding record of service and durability. Style 67 guarantees your best buy.

Style 67 is available in 6 standard sizes
From 28" long, 20" wide, 16" deep
To 40" long, 28" wide, 30" deep
INSIST upon Lane
and you insist upon the finest

Canvas Basket Craftsmen Since 1894

Lane

W. T. Lane & Bros., Inc., Poughkeepsie, New York

HELPFUL BOOKLETS FREE!

R-227 Formulas For Slashing Arnel —Includes also information on warping, weaving and quilling. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte 1, N. C.

R-228 The Random Web Process — Describes the Rando-Webber and Rando-Feeder. Bulletin 104. Curlator Corp., Textile Div., 501 W. Commercial St., Rochester, N. Y.

R-229 Quickclean Textile Motor — Details on totally enclosed fan cooled lint-free motor. Allis-Chalmers Mfg. Co., 1126 So. 70th St., Milwaukee, Wis.

R-232 Hydraulic Slasher Drives — Describes economical approach to improved slasher operation. Vickers, Inc., 1036 Peachtree St., Atlanta, Ga.

R-233 Textile Accessories — Gives specifications of Gates textile accessories in handy pocket booklet. The Gates Rubber Co., 1001 Broadway, Denver 17, Colorado.

R-234 Cocker Slashers — Complete specifications and advantages, including allied equipment. Cocker Machine & Foundry Co., Gastonia, N. C.

R-235 Mounts For Looms — Vinyl mount eliminates need for bolts or paste. Clark, Cutler, McDermott Co., 106 W. Central St., Franklin, Mass.

R-236 Unifil Loom Winder — Describes new concept of filling preparation which needs no quilling area. Universal Winding Co., P. O. Box 1605, Providence, R. I.

R-237 High Speed Warp Sizer—Gives outstanding features and specifications. Cocker Machine & Foundry Co., Gastonia, N. C.

R-238 Traveling Loom Cleaner—Advantages of the new Oscillaire loom cleaner. Parks-Cramer Co., Fitchburg, Mass.

R-239 Draper Repair Parts Catalog —Contains illustrations covering all mechanisms and construction with complete listings. Draper Corporation, Hopedale, Mass.

R-240 Baling Presses — Describes complete line of motor-driven and hydraulic baling presses. Logemann Brothers Co., 3150 West Burleigh St., Milwaukee, Wis.

R-241 Textile Machinery Parts Catalog — Describes complete line of Dayco and Thorobred textile parts. Dayton Rubber Co., Dayton, Ohio.

R-242 Instruments For Accuracy. — Systems for sizing and slashing. Bulletin 98229, Taylor Instrument Co., Rochester, N. Y.

R-243 Counting Devices — Describes complete line of counters for every application. Trumeter Company, 1265 Broadway, New York 1, New York.

R-244 Squirrel-Cage Loom Motor — Describes totally enclosed, non-ventilated, constant-speed motors. Westinghouse Electric Co., P. O. Box 2278, Pittsburgh 30, Pa.

R-245 Static Bars — Humorously illustrates how static can be overcome. The Simco Co., 920 Walnut St., Lansdale, Pa.

R-246 Care Of Draper Shuttles — Describes how longer, troublefree service may be obtained. Draper Corporation, Hopedale, Mass.

R-247 Clutch Brake Motor For Draper Looms — Describes compact power package for driving Draper looms. Westinghouse Electric Corp., P. O. Box 2278, Pittsburgh 30, Pa.

KNITTING

R-301 Singlehead Full-Fashioned Machine — Literature on request from the Wildman Jacquard Mfg. Co., Full Fashioned Div., Norristown, Pa.

R-302 Forged Head Aluminum Beams — Gives specifications on new high yardage beams. Milton Machine Works, Inc., Milton, Pa.

R-303 Raschel Knitter — Describes new Raschel-type knitting machine. Kidde Manufacturing Co., Inc., 35 Farrand St., Bloomfield, N. J.

R-306 Booklets On Fidelity Machines — Details on "400", Multi-Design Ribber, Skein Reelers. Fidelity Machine Co., 3908-18 Frankford Ave., Philadelphia 24, Pa.

R-307 Needle Oil Does Not Stain — Details on "Gulftex 39" developed for knitting mills. Gulf Oil Corp., P. O. Box 1106, Pittsburgh 30, Pa.

DYEING—BLEACHING—FINISHING—PRINTING

R-401 Solvent Detergents — Capabilities and advantages noted. Oakite Products, Inc., 126C Rector St., New York, N. Y.

R-402 Tubes For Package Dyeing — Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

R-403 Finishing Machinery — Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

R-404 Water Analysis — Includes tables, conversion factors, indicators, standard solutions. Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

R-405 Dyeing Equipment — Diagrams and descriptions of complete line. James Hunter Machine Co., North Adams, Mass.

R-408 Hydrogen Peroxide — Covers properties, uses and handling. Solvay Process Div., Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

R-409 Nonionic Softener — Properties and test procedures for "Emersoft 7700." Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

R-412 Cationic Surface Active Agent — Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

R-413 Chemicals, Dyes And Intermediates — Complete file of bulletins available. Metro-Atlantic, Inc., Centredale, R. I.

R-414 Wetting Agent — Describes highly concentrated detergent and wetting agent. Rohm & Haas Co., Washington Square, Philadelphia, Pa.

R-415 Peroxide Bleaching System — Illustrates and describes this continuous system. E. I. du Pont de Nemours & Co., Electrochemical Dept. T.I-2, Wilmington, Del.

R-416 Surface Tension Depressant — Tells how product can be used for wetting, dye leveling or as a penetrant. Hart Products Corp., 1440 Broadway, New York, N. Y.

R-417 Textile Chemicals — Describes leading products for wet processers. Royce Chemical Co., Carlton Hill, N. J.

R-418 Industrial Water Treatment — Discusses fundamentals of industrial water treatment. Rohm & Haas Co., Resinous Products Div., Washington Square, Philadelphia 5, Pa.

R-419 Theoretical and Applied Silk Soaking — Outlines methods and gives suggestions. Hart Products Corp., 1440 Broadway, New York 18, New York.

R-420 Brine For Textile Industry — Describes Lixate Process for making brine. International Salt Co., Inc., Scranton, Pa.

R-421 Depuma — Describes odorless, viscous, non-evaporating emulsion for anti-foam. American Aniline Products, Inc., 50 Union Square, New York, New York.

R-422 Catalyst AC-6 — Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Dept. T1-3, Springfield 2, Ohio.

R-423 Soda Ash Bulletin — Contains useful data covering this subject. Solvay Sales Division Allied Chemical & Dye Corp., 40 Rector St., New York 6, New York.

(Continued Next Page)

for superior finishes...
complete removal of size is a first essential

RAPIDASE®

UNEQUALLED FOR DE-SIZING AT HIGHEST TEMPERATURES AND AT HIGHEST SPEEDS

In concentrations to meet every requirement ... in liquid or powder form ... RAPIDASE is universally used for cottons and all fabrics containing man-made fibres.

WALLERSTEIN COMPANY, INC., 180 Madison Avenue, New York 16, N. Y.

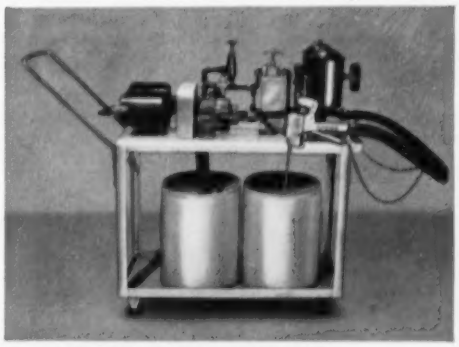
It's Here! The New

Wicaco Spindle Oiling Machine

The all-new Wicaco Spindle Oiling Machine fulfils the popular demand for a more efficient and economical spindle oiler.

IT HAS THESE OUTSTANDING FEATURES

- ★ Smaller than previous models—it can go anywhere a man can walk.
- ★ Light weight—it can be pulled along narrow aisles easily.
- ★ Economical—lower first cost and inexpensive operation.
- ★ New style, improved filter system cleans old oil for reuse and longer life.
- ★ Greater efficiency—operates with as little as one gallon of oil, filters the old oil and returns it for further use, or flushes out the old oil and replaces it with all new oil.
- ★ Complete flexibility—different oils may be used interchangeably by simply switching oil containers.
- ★ New filter gauge tells when filters need changing.
- ★ Relief valve permits full control of pressure from 0 to 35 lbs.



ORDER ONE TODAY
AND SEE HOW IT WILL IMPROVE
***YOUR* MAINTENANCE OPERATION**

WICACO MACHINE CORPORATION

Designers and Manufacturers of Precision Machinery and Parts Since 1868
4800 Stenton Avenue, Wayne Junction, Philadelphia 44, Pa.

HELPFUL BOOKLETS FREE!

R-424 Water Repellent Finish — Describes Aquarol water repellent finish. Arkansas Co., Inc., Newark, N. J.

R-425 Wool Oil — Describes antistatic fiber lubricant, Twitchell 7421. Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

R-426 Industrial Oil — Catalogs on Industrial Oil and Fatty Acid products. Swift & Company, Industrial Oil Dept., 1800 165th St., Hammond, Indiana.

R-427 Resins & Latices — Describes applications and gives properties. Goodyear Chemical Div., 1144 East Market St., Akron 16, Ohio.

R-428 Chemical Catalog — Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

R-429 Chemical Bulletins — Issued each month as a help to wet processers. WICA Chemicals, Inc., P. O. Box 506, Charlotte, N. C.

R-430 Hydraulic Power Units — Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

R-431 Proctor Drying Machinery — Describes all types of dryers, includes information on preboarding. Proctor & Schwartz., Inc., 7th and Tabor Rd., Philadelphia, Pa.

R-433 Safe Handling Of Hydrogen Peroxide — Lists safety rules to be followed in handling the product. Solvay Process Division, Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

R-435 Cut Water Treatment Costs — Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

R-436 Rapidase For De-Sizing — The properties and characteristics of Rapidase in detail. Wallerstein Co., Inc., 180 Madison Avenue, New York 16, N. Y.

R-438 Surface-Active Agent — Properties, applications, of Nonionic Actylphenoxyethanol Triton. Rohm & Haas Co., Special Products Dept., Washington Square, Philadelphia, Pa.

R-439 Curing Oven — Details, pictures, and advantages of gas-fired oven. James Hunter Machine Co., North Adams, Mass.

R-440 Guiders And Tension Devices — Straight line guiding of open width goods. Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass.

R-441 Processing Arnel Fabrics and Blends — Formulas for dyeing, printing, finishing and heat treating. Celanese Corp. of America, Textile Div., Marketing Dept., Box 1414, Charlotte, N. C.

R-442 Hycar Latices — Physical properties and typical fields of application. B. F. Goodrich Chemical Co., 324 Rose Bldg., Cleveland 15, Ohio.

R-443 Sodium Hydrosulfite — Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

R-444 50% Or 74% Caustic — Chart helps decide most economical caustic for you. Wyandotte Chemical Corp., Dept. 565-T. Wyandotte, Mich.

R-445 New Finishing Rolls — Money-saving facts about long-wearing, quality rolls. The Dayton Rubber Co., Holfast Div., 1486 Lakewood Ave., Atlanta, Ga.

R-446 Ethanolamines — Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical and Dye Corp., 40 Rector St., New York 6, New York.

R-447 Nappers For Treating Any Fabrics — Complete details on Muller Tri-Napping Machine. Franz Muller, Monchen-Gladbach, Germany.

R-448 Ball Bearing Turn Table — Describes 48-inch steel turn table for mills. Birch Brothers, Inc., 32 Kent St., Somerville, Mass.

R-449 Rotary Dyeing Machine — For use in dyeing hosiery, hats, gloves, socks, etc. Smith, Drum & Co., Allegheny Ave., at 5th St., Philadelphia 33, Pa.

R-452 Micro Switch For Wet Process — Advantages and applications in dyeing, bleaching, finishing. Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

R-453 Complete Line Of Mathieson Chemicals — Covers organic, inorganic, specialty chemicals. Olin Mathieson Chemical Co., Industrial Chemicals Div., Baltimore 3, Md.

R-456 Dyeing and Finishing Machinery — Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

R-457 Dyeing, Bleaching and Drying Equipment — Complete line for cotton, wool and synthetics described. Color pictures. Morton Machine Works, 1718 3rd Ave., Columbus, Ga.

R-458 Napthol Ratios Slide Chart — Quickly and accurately enables operators to determine Napthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

R-459 "PCB" Rock Salt — Tells how product saves money, eliminates bad dyeing. Morton Salt Co., Industrial Division, 120 So. LaSalle St., Chicago 3, Ill.

R-461 Wool Oils — Describes influence of wool oils in producing quality yarns and fabrics. Procter & Gamble Dist. Co., Gwynne Bldg., Cincinnati, Ohio.

R-462 Bleaching With Peroxygen Chemicals — Bleaching methods comprehensively treated. Becco Chemical Div., Food Machinery & Chemical Corp., Station B, Buffalo 7, New York,

R-464 Automatic Control System For Continuous Bleaching — How to control temperature, pressure and liquid level. Taylor Instrument Companies, Rochester 1, New York.

R-466 Penford Finishing Gums — Complete data, including physical properties. Penick & Ford Ltd., Inc., 420 Lexington Ave., New York 17, New York.

R-467 Regeneration Of Zeolite Water Softeners — Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

R-468 Dyeing Synthetic Fibers—Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

R-469 Single Apron Stock Dryers — Presents latest idea in automatic drying. C. G. Sargent's Sons Corp., Graniteville, Mass.

R-470 Eliminate Dye-Bath Shock — How to protect fabrics from crow's-feet, uneven shades. Foxboro Company, 487 Neponset Ave., Foxboro, Mass.

R-471 Continuous Peroxide Bleaching Ranges—Illustrations, description and specification of ranges. Rodney Hunt Machine Co., 49 Mill St., Orange, Mass.

R-474 Industrial Brushes — Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

R-475 Waste Heat Recovery — Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5200 West State Street, Milwaukee, Wis.

R-476 Washers For Scouring, Bleaching, Acidifying — Describes high-capacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

R-478 Wool Cleaning Unit—Describes unit for cleaning carpet wools mechanically before scouring. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

FIBERS AND YARNS

R-501 Textile Research—Story of the Research Department. American Viscose Corp., 350 Fifth Avenue, New York 1, N. Y.

(Continued Next Page)

THE INVISIBLE PLUS IN NYLON BY

ENKA

FOR LONG WEAR
excellent abrasion resistance

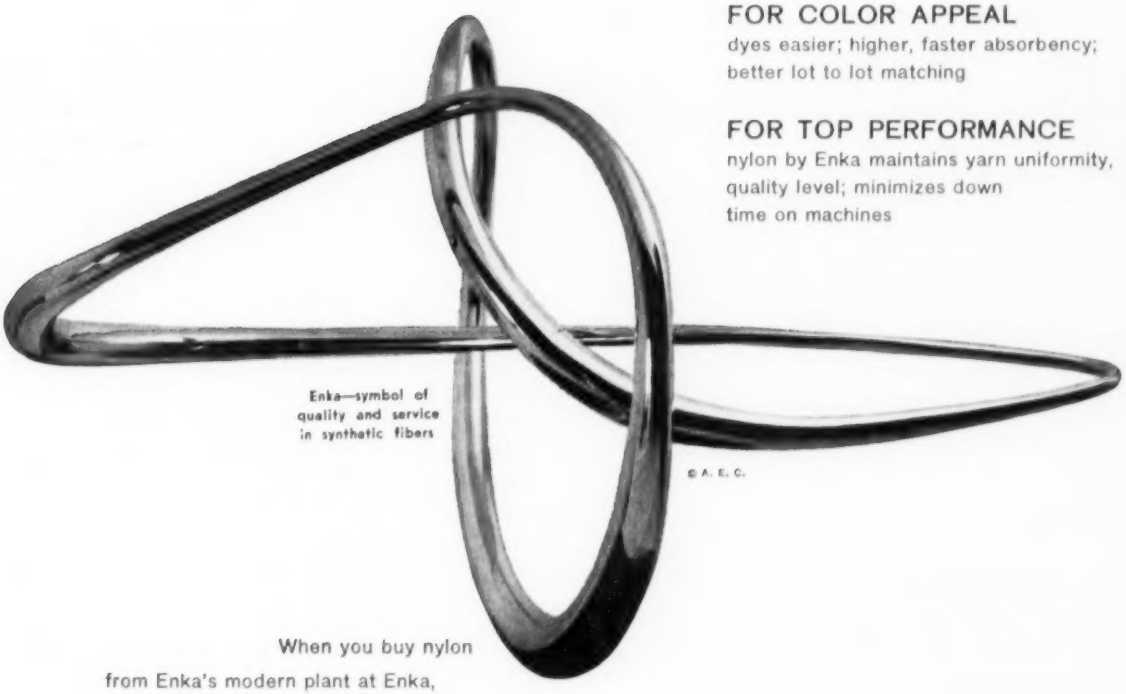
FOR EASY CARE
washable, dry cleanable, spot cleanable

FOR QUICK DRYING
the sales appeal of convenience

FOR ECONOMY
long wear cuts down expense

FOR COLOR APPEAL
dyes easier; higher, faster absorbency; better lot to lot matching

FOR TOP PERFORMANCE
nylon by Enka maintains yarn uniformity, quality level; minimizes down time on machines



Enka—symbol of quality and service in synthetic fibers

© A. E. C.

When you buy nylon from Enka's modern plant at Enka, North Carolina, you get all of the fine qualities of nylon itself and *more*. This plus is the most important point of all—Enka's lively interest and active help in making *your* operation an outstanding success!

AMERICAN ENKA CORPORATION PRODUCERS OF JETSPUN® • FILAMENT AND STAPLE RAYON • FILAMENT AND STAPLE NYLON

590 Fifth Ave., New York 36, N. Y. • 871 McCallie Ave., Chattanooga, Tenn. • 428 Jefferson Standard Bldg., Greensboro, N. C. • 2001 Industrial Bank Bldg., Providence, R. I.

HELPFUL BOOKLETS FREE!

R-502 Fortisan-36, New Textile Fiber —Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

R-503 Caprolan Nylon Heavy Yarns —Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

R-506 Rayon—Mile By Mile—Details on how rayon is produced mile by mile, perfect inch by inch. Industrial Rayon Corp., 500 Fifth Avenue, New York 18, N. Y.

R-507 The Chemstrand Nylon Story—Describes the birth and growth of Chemstrand nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

RESEARCH—TESTING—LABORATORY

R-601 Testing Instruments—Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearney, N. J.

R-603 Shadograph Weighing Devices —Pictures and information on various types of scales. Exact Weight Scales Co., Columbus 8, Ohio.

R-604 Evenness Tester—Details on taking the guess out of quality control. Uster Corp., 2516 Wilkinson Blvd., Charlotte, N. C.

MANAGEMENT, PROCESS ENGINEERING CONSULTANTS, FACTORS

R-701 Factoring Service—Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

R-702 Beechcrafts At Work — Tells how Beechcraft executive airplanes can save time and money. Southern Airways Co., Atlanta Airport, Atlanta, Ga.

R-705 The Wonalancet Way — Deals with current problems in Textiles. Wonalancet Company, 128 Burke St., Nashua, N. H.

R-706 A Fair Day's Pay And In Return A Fair Day's Work — Outlines proper utilization of labor, material and equipment. American Associated Consultants, Inc., 250 Park Ave., New York, N. Y.

GENERAL PLANT OPERATION

R-802 Belt Lacing Equipment — Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

R-803 Window Washing Systems — Tramrail Equipment enables men to reach all windows. Cleveland Crane & Engineering Co., Tramrail Division, Wickliffe, Ohio.

R-804 Motor Selector—How to select A-C motors for specific application. Reliance Electric and Engineering Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio.

R-805 Everything For Floor Care — Describes scrubbing, waxing, polishing and mopping equipment as well as waxes, sealers, and cleaners. Finnell System, Inc., Dept. TI, 1300 East St., Elkhart, Ind.

R-806 Rotary Pressure Joints—Details on self-lubricating, self-adjusting, self-aligning joints. The Johnson Corp., Three Rivers, Mich.

R-807 Servicing "One-Shot" Lubricators—Describes high capacity spring discharge piston pump lubricator. Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J.

R-808 Reduce Vibration — Illustrates savings possible through installation of Unisorb. The Felters Co., 216 South St., Boston 11, Mass.

R-810 Stop Corrosion — Details on "Speed-Rex" paint for metal, wood and concrete. Truscon Laboratories, Box 69, Milwaukee Junction, P. O. Dept. T, Detroit 11, Mich.

R-811 Cleaning Systems — Complete details on "Certified Climate and Cleaning Systems." Parks-Cramer Co., Fitchburg, Mass.

R-812 Mechanical Power Transmission — Includes drawings, dimension, weights, prices, application. Dodge Mfg. Corp., Mishawaka, Indiana.

R-814 Schaub "03" Deaerators—How a simplified principle and good engineering reduce prices. Fred H. Schaub Engineering Co., 2110 South Marshall Blvd., Chicago 23, Ill.

R-816 Leather Belting — Selection, installation, proper maintenance. Atlanta Belting Co., 508-510 Whitehall St., S. W., Atlanta, Ga.

R-817 One-Shot Lubricators—Details on pull-type semi-automatic lubricators. Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J.

R-819 Steel And Tank Service — Explains importance of periodic inspection, maintenance. Steel and Tank Service Co., 118 West 24th St., Charlotte, N. C.

R-820 Floaxial Dial Scales — Explains mechanism and gives applications. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

R-821 Modern Methods Of Textile Floor Maintenance — Complete details on taking care of mill floors. G. H. Tennant Co., 2530 N. Second St., Minneapolis 11, Minn.

R-822 Industrial Greases — Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

R-823 Roller Bearings For Textiles —How roller bearings are employed for more profitable textile production. Hyatt Bearings Div., General Motors Corp., Harrison, N. J.

R-824 Cylinders And Boosters — Complete listing of "in stock" equipment including proce and description. Miller Fluid Power Co., 2040 N. Hawthorne, Melrose Park, Ill.

R-826 Maintenance Of Variable Speed Drivers — Illustrates simple program for keeping drives in top shape. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

R-827 Textile Mill Motor Control — Describes combination starters for textile machines. Cutler-Hammer, 315 N. 12th St., Milwaukee, Wis.

R-828 Blower And Exhausters — Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

R-829 Paint Stripping Booklet — Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

R-830 Air Filtration — Illustrates Auto-Airmat, a dry-type air filter. American Air Filter Co., Inc., 275 Central Ave., Louisville 8, Ky.

R-832 Drinking Fountains & Coolers —Description of all models, dimensions, illustrations. Halsey W. Taylor Co., Warren, Ohio.

R-833 Textile Leathers Catalog — Characteristics and advantages of "Tannate" leathers. J. E. Rhoads & Sons, 2100 W. Eleventh St., Wilmington, Del.

R-834 Catalog Of Needle Bearings — Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

R-835 Textile Lubrication — Shows methods and means of lubricating all machinery. The Texas Co., 135 East 42nd St., New York 17, N. Y.

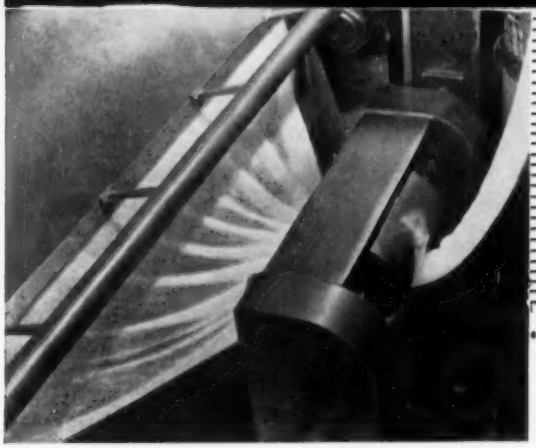
R-836 Metered Lubrication — Points up advantages of central lubrication systems. Bijur Lubricating Corp., Rochelle Park, N. J.

R-837 Service Procedure For Ball Bearings—Helpful manual shows how to increase life of ball bearings. New Departure Div., General Motors Corp., Bristol, Conn.

R-839 Lubrication Of Electric Motors —How to lubricate and clean ball and roller bearings. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

(Continued Next Page)

10,000,000 CARDING POINTS NEED PERFECT GRINDING ROLLS



THE CARD-GRINDING SPECIALISTS

DRONSFIELD'S

TRAVERSE WHEEL GRINDER No 120

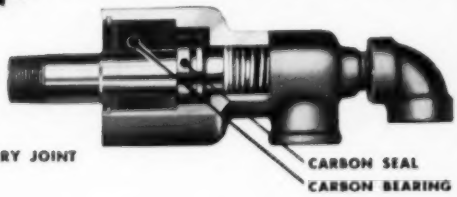
SOLID GRINDING ROLL No 112

Inquiries to:
John Hetherington & Sons, Inc.,
N. Marietta St. Ext., Gastonia, N. C.

DRONSFIELD BROTHERS LTD · OLDHAM · ENGLAND

SEALOL

CUT MAINTENANCE COSTS WITH CARBON as used in SEALOL Rotary Joints!!



TYPE S ROTARY JOINT

- BALANCED PRESSURE principle employed
- SIMPLE, COMPACT, streamlined design
- LOW TORQUE means power savings
- LEAK-PROOF design protects fabrics
- AUTOMATIC TAKE-UP for normal wear
- BEARING CHOICE (carbon or ball)
- MINIMUM MAINTENANCE, self-lubricating
- TO 150 psi steam, 300 psi hydraulic

Write now . . . for Bulletin 14 . . . for complete data!

SEALOL CORP
221 Post Road, Providence 5, R. I.

Boston • Buffalo • Chicago • Cleveland • Denver • Greenville, S. C. Jacksonville • Kansas City • Los Angeles • Milwaukee • Mobile, Ala. Newark • New York • Philadelphia • Pittsburgh • San Francisco Seattle • Tulsa • Washington, D. C. • Wheeling, W. Va. • Toronto, Canada

SEALOL

THE BALANCED PRESSURE SEAL

"What You Want When You Want It"

WONALANCET

Carded and Combed
COTTONS and SLIVERS
for
Woolen and Worsted Mills

WONALANCET COMPANY

3240 Peachtree Road, N. E., Atlanta, Georgia
and 128 Burke Street, Nashua, New Hampshire

HELPFUL BOOKLETS FREE!

R-840 Ball Bearings For Textile Machinery — Bearings for all phases of textile processing. The Fafnir Bearing Co., New Britain, Conn.

R-841 Lubrication Of Bearings — Helpful list of do's and don'ts to prolong bearing life. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

R-842 Textile Mill Cleaning Guide — Methods and means of proper cleaning and maintenance. Oakite Products, 52 Rector St., New York 6, New York.

R-843 For Static Elimination — Eliminates static safely, simply and inexpensively. Simco Co., 980 Walnut St. Lansdale, Pa.

R-845 Cut Costs With Moyno Pumps — Describes "progressing cavity" pumps for mercerizing and sizing. Bulletin 30-TI, Robbins & Myers, Inc., Springfield, Ohio.

R-847 Lubricants For Textiles — Working samples of bearing lubricants, spindle oils, etc. Georgia-Carolina Oil Co., Box 101, Macon, Ga.

R-848 Oil-Tight Pushbuttons. — Describes line of pushbutton units for textiles. Cutler-Hammer, Inc., Milwaukee, Wisconsin.

R-850 New Lubricated Plug Valves—Semi-steel and steel lubricated plug line. The William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

R-851 "Tank Talk"—Shows various types of elevated steel tanks. R. D. Cole Manufacturing Co., Newnan, Ga.

R-852 Cotton Mill Equipment — Traces pictorially the steps in processing raw cotton into finished cloth. Westinghouse Electric Corp., 511 Wood St., Pittsburgh 30, Pa.

R-853 Micro Switch Bulletin—Catalog of products includes prices, applications, etc. Micro Switch Div., Minneapolis-Honeywell Regulator Co. Freeport, Ill.

R-854 Roller Bearings For Textiles—How roller bearings can help production. Hyatt Bearings Div., General Motors Corp., Harrison, N. J.

R-855 Unit Heater — Data on the Herman Nelson horizontal and vertical units. American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky.

R-856 Stainless Steel For Textiles—Applications and advantages of stainless textile equipment. Allegheny-Ludlum Steel Corp., Dept. TI-71, Oliver Bldg., Pittsburgh 22, Pa.

R-857 Floor Scrubber — Description and specification for Scrubber Vac. Finnell Systems, Inc., 1300 East St., Elkhart, Ind.

R-861 "Vari-Pitch" Sheave Bulletin —Control by means of pitch diameter adjustment described. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

R-863 Penetrating Wood Finish — Describes floor seals for textiles. E. I. Du Pont De Nemours & Co., Inc., Finishes Div., Wilmington, Del.

R-864 Certified Climate Air-Changer System — Describes use with direct humidification for partial or complete air conditioning. Parks-Cramer Co., Fitchburg, Mass.

R-868 Ridge Tool Prices—Capacities and weights included along with pictures. Ridge Tool Co., Elyria, Ohio.

R-869 Stainless Steel Fabrication — Information on ventilating and drying, slasher exhaust, and materials handling in stainless. Sims Metal Works, West Point, Ga.

R-871 Color Conditioning — How to put color to work for you. E. I. Du Pont De Nemours & Co., Inc., Finishes Div., Wilmington, Del.

R-872 Metal Conveyor Belts — Illustrates entire range of manufacture. Ashworth Bros., Inc., Metal Products Div., Fall River, Mass.

R-873 Rihco Humidifiers And Cooling Systems—Describes new atomizers to lessen air consumption in evaporative cooling systems. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

R-874 Dynac Brake Motors—Electrical braking of a-c motors-roving, spinning, knitting. Westinghouse Electric Corp., Pittsburgh, Pa.

R-875 Textile Applications For "Scotch" Tape—Some good ideas on using "Scotch." Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

MATERIALS HANDLING

R-901 Casters And Wheels—Casters and wheels for all applications. Darnell Corp., Ltd., 12000 Woodruff Ave., Downey, Calif.

R-902 Canvas Baskets — Complete line for textile use. W. T. Lane & Brothers, Poughkeepsie, N. Y.

R-903 Overhead Handling Equipment — Shows successful applications of monorail systems. American Monorail Co., 13106 Athens Ave., Cleveland 7, Ohio.

R-904 How To Test Corrugated Boxes —Offers comprehensive check-list for judging boxes. Hinde & Dauch, Sandusky, Ohio.

R-905 Conveyor Key Book—How to step-up production with modern conveying. Logan Co., 1115 Franklin St., Louisville, Ky.

R-906 How To Select A Lift Truck—Excellent means for price comparison between similar trucks. Hyster Co., 2902 N.E. Clackamas St., Portland 8, Oregon.

R-907 Corrugated Containers — Describes Multi-Unit and Bulk Container. Gaylord Container Corp., 111 N. 4th St., St. Louis 2, Mo.

R-909 Tramrail Engineering And Application — Data on how Tramrail Equipment can cut handling costs. Cleveland Tramrail Div., Cleveland Crane and Engineering Co., 1036 East 289th St., Wickliffe, Ohio.

R-910 How To Specify Packaging — Regulations on shipment, how to determine which package to use. Hinde & Dauch, Sandusky, Ohio.

R-911 New Lift Trucks—Shows latest trends in lift truck design. Hyster Co., 2902 N.E. Clackamas St., Portland 8, Oregon.

R-912 Materials Handling For Textiles—Shows how fibre trucks can increase efficiency, protect products. National Vulcanized Fibre Co., Wilmington 99, Del.

R-913 Continuous Power Conveyor—Complete information on Zig-Zag Conveyor. Richards-Wilcox Mfg. Co., Aurora, Ill.

R-914 Stresses On Overhead Tracks —Covers track peening, discusses stresses. Cleveland Tramrail Div., Cleveland Crane & Engineering Co., Wickliffe, Ohio.

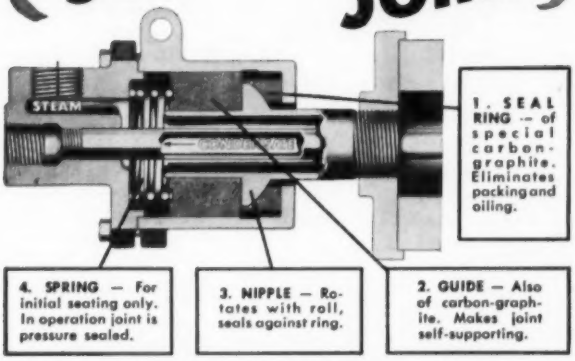
R-915 Scientific Materials Handling —Describes various materials handling devices, includes pictures. Bennett Rose Co., Box 8, Roebuck, S. C.

R-916 Overhead Materials Handling —Treats twin fan ceiling cleaners and shock proof electrification as well. Louden Machinery Co., Fairfield, Iowa.

R-917 Little Packaging Library — Series of booklets covers the business of shipping in corrugated boxes. Hinde & Dauch, Sandusky, Ohio.

R-919 Improved Materials Handling —"Materials in Motion" describes use of fibre containers. National Vulcanized Fibre Co., 1056 Beech St., Wilmington, Del.

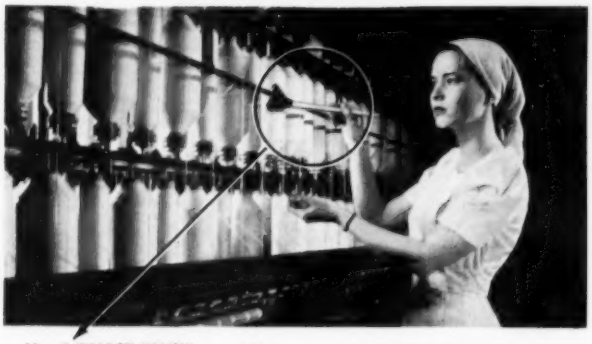
Only 4 internal parts in this self-supporting Johnson Joint


STEAM
1. SEAL RING — of special carbon-graphite. Eliminates packing and oiling.
2. GUIDE — Also of carbon-graphite. Makes joint self-supporting.
3. NIPPLE — Rotates with roll, seals against ring.
4. SPRING — For initial seating only. In operation joint is pressure sealed.

With this 3000 Series Type S-B2 Joint, an assembly plate can be added at any time; it is used with the Johnson Syphon Elbow, to hold internal parts in position when the head is removed. Write for Bulletin No. S-2001.

The Johnson Corporation

815 Wood St., Three Rivers, Mich.



No. 3 FINGER BRUSH
Set in Bakelite

No. 28 LOOM DUSTERS
New "slim" design for work around combing and spinning frames.

No. 41-23 COMBER DUSTERS
Extra strong setting not affected by oil, grease or ordinary liquids.

A Better Brush for a Better Job ... FELTON Dusters

Felton brushes have special reinforced settings for longer-life, double strength. Available with stiff horsehair, nylon, horsehair-fibre combinations, and special synthetics.
Also, special Brushes — for whatever jobs you require — can be made quickly, correctly and economically.

S. A. Felton & Son Co.
MANCHESTER, N. H.

Ask for FELTON on your next order

Felton

IN THE SOUTH:
SCHMIDT MFG. CO.
of South Carolina: Greenville, S. C.

ONYX OIL & CHEMICAL COMPANY

excerpt from the latest

ONYX DATA-FILE on ASTON*

THE REVOLUTIONARY NEW DURABLE ANTI-STATIC FOR ALL SYNTHETICS AND BLENDS

This latest, new addition to the Onyx family of fine finishes, dyeing assistants, and softeners, is attracting widespread interest throughout the entire textile industry. For that reason we present here a summary of the new Onyx DATA-FILE on ASTON LT and ASTON 108.

WHAT IS ASTON? Aston is a polymeric electrolyte, which, although insoluble is also hygroscopic. The cured compounds are nitrogenous anion exchange resins which conduct electricity, thus preventing static charges from building up.

HOW DURABLE IS ASTON? Durability to washing and dry cleaning far exceeds that of any other known chemical finish for textiles.

REPRESENTATIVE TABLE OF MACHINE WASH DURABILITY OF ASTON FINISH ON VARIOUS SYNTHETICS AND BLENDS
Washes are at 140°F, full cycle in a Westinghouse Laundromat, using Tide

FABRIC	DURABILITY BY NUMBER OF WASHES	FINISH
ORLON work clothes	140	ASTON LT
WOOL-DACRON-ORLON work clothes	75	ASTON LT
ACRILAN blanket	100	ASTON 108
NYLON TRICOT	12 to 15	ASTON LT
DACRON TAFFETA	40 to 50	ASTON 108
DACRON sportswear	20 to 40	ASTON 108 (½% dry solids)
DACRON-WORSTED suiting	50	ASTON LT

HOW IS ASTON APPLIED? Under practical plant conditions, with no special equipment — just as any resin finish is applied.

IS ASTON EXPENSIVE? Aston costs no more to apply than any other basic functional finish.

HOW ABOUT APPLICATION CHARACTERISTICS? Many advantageous ones, such as — 1) Immediate solubility in water. 2) Forms clear in-use baths 3) Moderate self-wetting properties 4) Good bath life 5) Low temperature range of liquor during application 6) No build-up on pad or quetsch rollers 7) Ease of bath dilution 8) Compatibility with a range of finishes 9) Application by conventional methods and equipment 10) Practical conditions for drying and curing 11) Suitability for subsequent mechanical finishing operations.

ASTONIZED FABRICS — do not cling, or ride up — do not attract dust or lint — absorb moisture to breathe like cotton for a new level of all-season comfort.

* PAT. PEND.

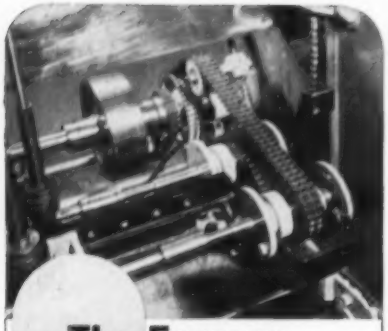
ASTON . . . THE MOST WANTED FINISH SINCE SYNTHETICS BEGAN.

Write for your complete DATA-FILE on Aston.

ask the Man from Onyx

ONYX CHEMICALS

ONYX OIL & CHEMICAL COMPANY,
Textile Division, 190 Warren Street, Jersey City 2, N. J.



The Famous Precision Patented Compound and Chain Drive

floating power for Roving Frames

Every gear, sleeve, and bearing rotates in the same direction as the jack shaft. Positive one-way power transmission starts or stops bobbins and spindles simultaneously.

- **Ends Stay Put** regardless of starting or stopping speeds
- **No Lag**
- **No Backlash**
- **No Breakage**
- **No Stretched Places**
- **and No Oil Spots** Completely sealed lubrication
- **The Result**

The Precision Compound and Chain Drives produce bobbins of uniform size and weight with equal tension from the first to the last layer of yarn. The Precision Compound will save you many times its cost in producing better roving—and in fewer seconds and better running work in subsequent processes.

- **Roving Bearings for all makes and models**

Precision Gear & Machine Co.
2001 N. Tryon St. • ED 4-6857
Charlotte 1, North Carolina

What the TEXTILE MILLS are doing

The plant of **E. M. E. Mills, Inc.,** at 1916 Park Ave., New York 37, N. Y., is being equipped with lace and net machines. Already six machines of a well-known make are in use, and 18 more of the same machines are on order.

Hand-fashioned sweaters are being produced in an 11,500 sq ft building in Puerto Rico by **Ess Arr Mills, Inc.,** with a work force of 43 persons. Within a year the plant will begin to manufacture full-fashioned sweaters with an anticipated work force of 150. The plant was established under the "Operation Bootstrap" industrial incentives program of Puerto Rico.

Grand Valley Textiles, Ltd., Galt, Ontario, has ceased operations and has no plans for resuming production.

A recent announcement states that the Douglas Division (Douglasville, Ga.) of **Glendale Mills, Inc.,** ceased booking orders in late May and will cease operations as the stock in process runs out. If efforts to sell the mill as a going concern fail, the machinery and real estate will be sold separately. The plant contains 28,000 spindles and 735 looms.

Hope Webbing Co., Pawtucket, R. I., has been purchased by David Casty, treasurer of Everlastik, Inc., Chelsea, Mass., manufacturers of elastic narrow fabrics, and Rudy Kemp of TapeCraft, Inc., Anniston, Ala., from the Massachusetts Mohair Plush Co., Lowell, Mass., who bought the Hope mill about a year ago.

A recent report states that a new knitting plant, **Greensboro (Ga.) Knitting Mills, Inc.,** has opened for the production of athletic shirts, etc.

Huntsville (Ala.) Mfg. Co. has resumed publication of its monthly employee magazine, *The Huntsville Parker*, with Mrs. Sarah Huff Smith as editor.

According to a recent announcement, the name of the Cascade Plant (Mooresville, N. C.) of Burlington Industries, Inc., has been changed to that of **Cascade Weaving Co.** Producing spun rayon fabrics, the plant will be under the management of W. H. Spencer, Jr., who for the past several years has been plant superintendent.

A recent announcement states that **Dexdale Hosiery Mills,** Lansdale, Pa., will sell some of its 54-, 60-, and 66-gauge full-fashioned machines and concentrate on 75-gauge full-fashioned and seamless. The company will buy some equipment needed to round out its seamless production.

It has been announced that **Dunn Worsted Mills,** Woonsocket, R. I., will cease operations when the stock in process is exhausted.

Five thousand persons employed by **Erwin Mills, Inc.,** recently were guests of Erwin at a noon picnic which featured as a main course 675 gallons of Brunswick stew plus trimmings. M. M. Payne (the picnic was held in his yard), manager of the four Durham, N. C. plants, his local management personnel, and Eddie W. Siegler, vice-president and general manager, assisted in the preparation of the stew. * * * The North Carolina plants of Erwin are engaged in a safety contest called "Greenbacks for Safety." Each week an individual works without an accident necessitating treatment by a doctor or loss of time from work, his or her supervisor will award the employee with a "Safety Dollar." The employee will then write his or her name on the back of the dollar and drop it in the contest box in his or her department. Each "Safety Dollar" won (a possible 13) by the individual employee will represent one chance on one of the prizes. The prizes range from safety shoes to aluminum folding chairs, and will be awarded at each plant monthly.

Fulton Bag & Cotton Mills of Atlanta, Ga., recently donated several looms, triple coiler heads for drawing frames, and sliver-to-yarn spinning frames to Georgia Institute of Technology, North Carolina State College, Clemson College, Alabama Polytechnic Institute, and the Insti-

Again Available

to the TEXTILE INDUSTRY

FAMOUS

ALLEN

Kiers, Top Dyeing Machines
Special Bleaching Equipment

Textile mills now using, or seeking to purchase Allen Dyeing and Bleaching Equipment will welcome the announcement that all Allen products are now being manufactured by O. G. Kelley and Company of Boston, Mass., with William Allen Son's Company, the former owners, acting as engineering consultants and sales representatives.

With its tremendous facilities and long experience in the metal fabricating field, O. G. Kelley and Company, working closely with ALLEN engineers according to ALLEN drawings and specifications, is well equipped to supply you with the finest in bleaching and dyeing equipment.

WILLIAM ALLEN SON'S COMPANY
SHREWSBURY, MASSACHUSETTS
Division of **O. G. KELLEY & COMPANY**
BOSTON 22, MASSACHUSETTS

REPAIR PARTS

Repair and replacement parts, precision built specifically to fit your ALLEN equipment, are now available or can be specially made for prompt delivery.

First

from BALTIMORE

The First POST OFFICE system was initiated in Baltimore in 1774 – by William Goddard.

Courtesy – The Baltimore News-Post

– also from Baltimore...

YOUR *First* CHOICE IN BLACKS

- DIRECT
- ACID
- DEVELOPED
- ACETATE
- FORMALDEHYDE
- LOGWOOD

THE HOUSE OF BLACKS

Consult your local dyestuff distributors for information and samples. Shipments can be made from our Baltimore factory.

YOUNG ANILINE WORKS, INC.

OFFICE AND FACTORY: 2701-2733 BOSTON STREET • BALTIMORE 24, MARYLAND

PROPER UTILIZATION

OF

LABOR

EQUIPMENT

MATERIALS

CAN MEAN A HEALTHIER PROFIT PICTURE FOR YOUR MILL

Our list of clients reads like the Blue Book of American Manufacture, and in our files are many expressions as to our service and results accomplished, like the following:

I am pleased to advise you that I consider this firm to be outstanding in the field of labor utilization engineering, and have no hesitancy in recommending them for any work of an industrial engineering nature which they propose to undertake."

ONE OF THE GREAT MANUFACTURERS OF UNDERWEAR

WRITE FOR FREE COPIES

OF

★ LABOR & MANAGEMENT BENEFIT BY INDUSTRIAL ENGINEERING PRINCIPLES.

★ A FAIR DAYS PAY AND IN RETURN, A FAIR DAYS WORK.

AMERICAN ASSOCIATED CONSULTANTS INCORPORATED

D. S. KEOGH, President

350 Park Avenue New York 17, N. Y
Grant Building Pittsburgh, Pa
206 Edificio Pastrana Medellin, Columbia S. A.

What the TEXTILE MILLS are doing

tute of Textile Technology. The machines were previously used for experimental and research purposes, and were made available to the schools as a result of an over-all program of reorganization and streamlining operations at Fulton Bag. Said Fulton Bag President Clarence Elsas: "Our interest in helping our textile schools in every way to develop the most competent and well-trained graduates has always been a keen one, and we hope that this gift will make a valuable contribution to the wonderful work our schools are doing in providing us with the kind of young talent on which the progress and future prosperity of our industry depends to a great extent."

To meet present and future expansion needs, **Northeastern Dye Works** has moved its plant and machinery to the dyehouse of the former Lafayette Spinning Mill in Woonsocket, R. I.

Upward of 2700 sq ft of office space are being added to **Parkdale Mills, Inc.**, Gastonia, N. C. The addition, a conventional structure with a flat roof, will adjoin the plant.

Puritan Cordage Mills, Inc., Louisville, Ky., has purchased **Blue Ridge Cord Co.**, Hendersonville, N. C. Puritan also operates a plant in Athens, Ga.

The knitting facilities at Malden, Mass., and the warehouse facilities in Melrose, Mass., belonging to **Revere Knitting Mills, Inc.**, are to be relocated in Wakefield, Mass., and the facilities combined under one roof. The new location, formerly occupied by Wakefield Printing Co., offers 70,000 sq ft of floor space, and an equivalent amount of off-the-street parking space.

Rock Hill (S. C.) Printing and Finishing Co. recently sponsored 42 youngsters for a 10-day stay at the Worthy Boy's Camp at Rock Hill.

A report from Paul Haberfeld, vice-president and general manager of **Rose Marie Reid**, women's swimwear firm of Los Angeles, Calif., states that his firm contemplates manufacturing knitted fabrics "as soon as possible." A capital expenditure of $100,000 is anticipated in the purchase of the most modern equipment. The report states further that the present fabrics do not offer the firm the degree of versatility needed to develop the swim suit to "its full potential."

Schlegel Mfg. Co., Rochester, N. Y., is building a new one-story plant outside that city to produce the firm's new product, woven plastic windlace. The new fabric, developed expressly for the automotive industry, prevents wicking, fading and bleeding, and is easy to clean.

J. P. Stevens & Co., Inc., has disbursed approximately $1,300,000 in vacation pay to its 14,000 eligible employees in its 20 South Carolina plants. Similarly, approximately $520,000 in vacation pay was given the 5400 eligible employees in its North Carolina plants. Employees with one year of service are eligible for 2% vacation pay; those with five years, 4%. * * * The Whitmire plant, located at Greenville, S. C., and the Appleton plant located at Anderson, S. C., recently were granted Certificates of Award from the South Carolina Department of Labor for outstanding safety records during 1956.

Negotiations are in progress for the merger of **J. L. Stifel & Sons, Inc.**, and **Indian Head Mills, Inc.** Indian Head operates mills in Cordova, Ala., Spartanburg, S. C., and Ponce, Puerto Rico. Stifel, which previously operated a cotton mill in Douglasville, Ga., and a finishing plant at Wheeling, W. Va., now operates a cotton mill at Glendale, S. C.

Springs Cotton Mills has decided to increase the weave room addition to its Eureka plant, Chester, S. C., by another 90 ft. The additional length of weave room will cost approximately $120,000 for the building alone.

Palmetto Yarn Mills, Pageland, S. C., is planning to add approximately 8000 sq ft of floor space to its present plant. Palmetto is part of the Neisler Mills Div. of Mass. Mohair Plush Co., Inc.

The business formerly conducted by **Whittier Mills Co.**, Chattahoochee, Ga., is now conducted by a Georgia corporation of the same name. Officers of the new corporation are: J. J. Scott, president; Hansford Sams, Jr., treasurer; and Miss M. Duncan, secretary. The directors are: J. J. Scott, Hansford Sams, Jr., Miss M.

Duncan, Grady Sammon, and Ames Stevens. Grady Sammon will continue to be superintendent in charge of manufacturing and hose cord sales. The wool and synthetic yarn products of the company will continue to be sold by Ames Textile Corp., 112 West 34th St., New York, N. Y. Other products will be sold direct from the mill.

A new firm, **Yanceyville (N. C.) Knitting Mills,** has been incorporated to manufacture and sell half-hose products. The company will begin operations with 16 knitting machines.

The Kansas City, Kan., plant of **Fulton Bag & Cotton Mills** has been sold. Other plants in Fulton's bag division will continue to serve Midwest textile bag customers.

Students of the Department of Public Relations, Univ. of Maryland, are using the annual report of the public relations department of **Abney Mills-Erwin Mills** as a case study. There are 27 plants and 15,500 employees in the group. * * * Five plants of Abney Mills in South Carolina have been designated by the South Carolina Department of Labor to receive Safety Award Certificates for their outstanding safety records during the year 1956. The plants receiving the honor are: Renfrew Bleachery, Traveler's Rest; Anderson, Ladlassie, and Riverside Mills, all at Anderson; and Grendel Mill, Greenwood.

"Adverse market conditions" have led **Amerotron Corp.** to announce plans to close its combed lawn plant on Louise Ave., Charlotte, N. C.

This year **Avondale Mills,** with home offices in Sylacauga, Ala., paid $410,161.50 in vacation pay to its employees. The several plants of the Avondale chain staggered their vacation periods from June 8 to August 5 to permit more of the personnel to enjoy the firm's Camp Helen, located on the Gulf Coast of Florida. The average vacation check amounted to $97.75.

Buck Creek Cotton Mills, Siluria, Ala., has purchased all the outstanding stock of the J. W. Sanders Cotton Mill, Inc., Starkville, Miss. The plant will be used for producing carded chambrays, both plain and fancy, for the converter trade and for over-the-counter sales. The officers of the firm are: J. T. Phillips, Siluria, chairman; Fred F. Phillips, Siluria, president; Julius Chapman, Birmingham, Ala., secretary and treasurer; H. M. Johnson, Siluria, executive vice-president; J. Lamar Moore, Starkville, vice-president (also mill manager). The name of the purchased plant has been changed to **Starkville Mills, Inc.,** the only charter change made.

Burlington Industries, Inc., plans to establish a heliport on a seven-acre tract of land off Battleground Ave., in Greensboro, N. C. Temporarily a practice green on Green Valley Golf Course will be used; and ultimately the roof of Burlington's executive offices on North Eugene St. will be used for helicopter landings and take-offs.

This year, while observing its 20th anniversary, **Maryon Hosiery Mill, Inc.,** Carrollton, Ga., will expand its production capacity approximately 10%. The firm produces boys' socks.

Four firms, Wyomissing Glazed Paper Co., Reading Glazed Paper

INTERTEX

MACHINERY for COTTON RAYON SILK WORSTED WOOL

INTERTEX Corporation

270 Madison Avenue, New York 16, N. Y. • Cable: TRINTEXT, New York

What the TEXTILE MILLS are doing

Corp., United Mfg. Corp., and Narrow Fabric Co. have united in a single corporation. All textile operations will be carried out under the name of **Narrow Fabric Co.**, while all paper output will be conducted under the name of Wyomissing Paper Products Div. of Narrow Fabrics.

One hundred new looms have been installed in **Clinton (S. C.) Cotton Mills** for the production of 50" print cloth. Existing space was used.

According to a recent announcement the **Real Silk Hosiery Mills, Inc.**, Indianapolis, Ind., will cease manufacturing operations this year and will concentrate entirely on door-to-door selling on a commission basis.

Plans have been laid to increase the floor space of **Harper Hosiery Mills, Inc.**, Concord, N. C., from 6200 sq ft to 10,000 sq ft and to double the working force of 77 employees.

The William Carter Co. reports that an order has been placed for an electronic computer which will be used for order processing, inventory control, and billing in the firm's home office. It was said the unit will also be used for production scheduling and sales planning. Edward C. Marzo, head of Carter's methods department, said a ten-day reduction in working time is anticipated with the use of the electronic computer in the preparation of monthly sales reports, and that the unit will also lead to a reduction of inventory due to the shortened manufacturing lead time made possible by tighter control methods.

The computing process of a Univac electronic system is explained to Horace A. Carter (left), president and treasurer of The William Carter Company, in the Harvard Computation Laboratory in Cambridge, Mass., by Warren Semon, lecturer on applied mathematics at Harvard University. Right is Otis A. Kendall, regional manager of the Remington Rand Division of the Sperry-Rand Corp., the firm which will build the underwear manufacturer's computer.

The 253 village homes belonging to **Inman Mills**, Spartanburg, S. C., are being sold to employees of that firm.

Valley Knitting Co., Inc., has sold Port Leyden (N. Y.) Knitting Mill to **Johnstown (N. Y.) Knitting Mill Co., Inc.** Operation of the plant, which closed May 31, has been resumed.

The city of McMinnville, Tenn., will issue $380,000 in bonds to finance a building to be used in an expansion program by **Kingsboro Mills, Inc.**, a firm now operating a plant in McMinnville. Rental from the 50,000 sq ft building will be used to retire the bonds.

Callaway Mills Co., LaGrange, Ga., has acquired controlling interest in Leeming Bros., Salford, England. Leeming's management personnel will continue to operate the business which produces industrial wiping towels.

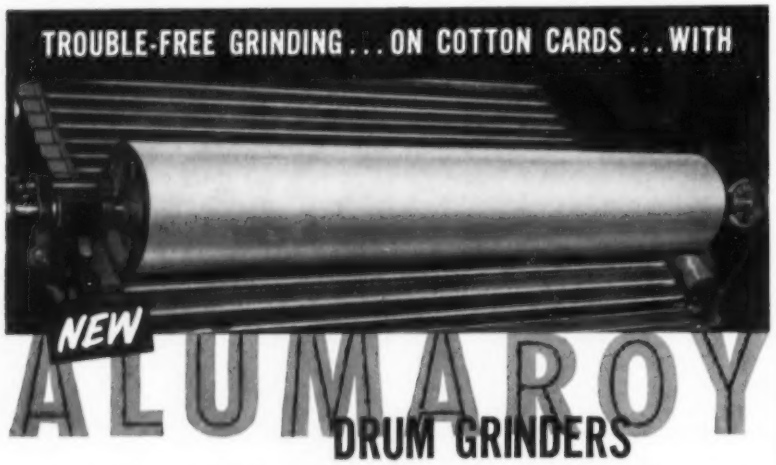
Lyman (S. C.) Printing and Finishing Co. has opened a new recreation building in that city for use by employees of the firm, an affiliate of M. Lowenstein & Sons.

Through an exchange of stock, **Lisle Mills, Inc.**, and **Penn State Mills, Inc.**, both of Allentown, Pa., have merged. Lisle manufactures infant's wear; Penn State makes cotton knit goods for boys, men, ladies, girls.

For the second time in its history, the Easley (S. C.) plant of **Woodside Mills** has completed 1,000,000 man-hours without a lost-time accident. The previous million hours were accumulated in 1952.

Controlling interest in the **Wilton (Me.) Woolen Co.** has been purchased by **R. G. Fromkin Co., Inc.** The purchasing firm will assume all contractural deliveries of Wilton Sales Corp., and has announced plans to spend approximately $500,000 in modernizing the plant.

James Geizentanner, John Geizentanner, and William Fox, all of Asheville, N. C., have formed **G & F Hosiery, Inc.**, for the purpose of finishing socks.



B. S. Roy's latest development . . . an aluminum alloy drum grinder . . . weighs only half that of steel or cast iron models.

This lightweight grinding roll eliminates springing of the top flats caused by the heavier drums and assures even, perfect grinding over the entire surface of each working flat.

For savings on Card clothing . . . better card settings . . . lower maintenance and repair costs, get full details on "ALUMAROY".

"BALANCED" ROY GRINDERS

B. S. ROY & SON COMPANY

Southern Office and Plant
Linwood at Second Ave.
Gastonia, N. C.
Telephone Gastonia UN 4-2126

SUPPLIERS News

WHAT THEY ARE DOING

Now under way at Murray Hill, N. J., and expected to be complete by the end of 1957, is the construction of a modern, two-story polymer laboratory to house additional chemical research facilities of **Air Reduction Co., Inc.,** whose acetylenic-base chemicals find a wide range of application in the textile, plastic, paint, adhesives, and coatings fields, among others.

Alliance Color and Chemical Co., a division of The Andover Co., has announced the appointment of W. Richard Cake to the position of general manager. For the past three years, Mr. Cake has been assistant to the president of the firm.

Lloyd C. Parker and Patrick H. Reagan have been newly assigned to posts in the South for **Allis-Chalmers Manufacturing Co.** industries group. Previously a field superintendent, Mr. Parker has been named a serviceman in the southeast region with headquarters in Atlanta, Ga., and Mr. Reagan has been named a sales representative in the New Orleans, La., district office.

On July 1, **A. S. R. Products Corp.** officially became the new corporate name for the American Safety Razor Corp. Diversification and increased growth were the reasons for the change. In the textile field, the company produces pile wires and blades used in making carpets and also markets, installs and services carpet and upholstery looms made by the Van de Wiele Co. of Belgium.

John S. Gebbie, a new sales representative for the industrial division of **Armstrong Cork Co.,** upon completion of training, has been assigned to the Greenville, S. C., district office, to be responsible for the sale of textile mill supplies, among other items. William W. Downs has been named to work on a technical project in textile products sales at Lancaster, Pa.

Charles Bond Co. has announced the appointment of William P. Russell as factory agent selling Bondaron textile leathers and Bondaron flat and round leather belting in Ga., Ala., Miss., and Tenn. Mr. Russell's address is P. O. Box 778, 308 Walton Building, Atlanta 1, Ga. William J. Moore continues as factory agent in North and South Carolina.

Harry Clinch has joined **Atkinson, Haserick & Co.,** to serve the firm in the southern territory. Mr. Clinch, who is a specialist in cotton drawing and spinning equipment, was formerly North American sales manager of Platt Bros. (Sales) Ltd.

Eldon Stowell, textile engineer and authority and lecturer on stretch and bulk yarns, has joined **Brant Yarns, Inc.,** as technical director. Mr. Stowell will also assist the firm in sales and development of new products,

NON-FLUID OIL

TRADE MARK REGISTERED

FOR GREATER PRODUCTION OF TOP-GRADE YARN

Seven out of ten mills today use NON-FLUID OIL for the lubrication of top rolls, bottom roll stands and saddles of long draft frames. They get greater production of cleaner, more even yarn at lower lubricant cost with this drip-less, spatter-less, full-time lubricant.

There are other savings too. NON-FLUID OIL lubricates until entirely used up. Thus it lasts longer and need not be applied as frequently as other lubricants . . . giving economies on both lubricant and application costs.

Write for Bulletin T-13 and your free sample of this proven spinning frame lubricant.

NEW YORK & NEW JERSEY LUBRICANT COMPANY

292 MADISON AVE., NEW YORK 17, N. Y.

WORKS: NEWARK, N. J.

So. Dist. Mgr. : Lewis W. Thomason, Jr. Charlotte, N. C.

1896 61 1957 YEARS OF LUBRICATION SERVICE TO INDUSTRY NON-FLUID OIL

WAREHOUSES

Birmingham, Ala. Atlanta, Ga. Columbus, Ga. Charlotte, N. C. Greensboro, N. C. Greenville, S. C. Chicago, Ill. Springfield, Mass. Detroit, Mich. Providence, R. I. St. Louis, Mo.

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture. So called grease imitations of NON-FLUID OIL often prove dangerous and costly to use.

SUPPLIERS News
WHAT THEY ARE DOING

offer assistance in knitting, weaving and dyeing, in solving yarn and processing problems, and creating new yarns and products for the benefit of customers. Mr. Stowell recently resigned from Universal Winding Co., where he was in charge of yarn and yarn product development.

At the time of the physical merger of **Hyde-Rakestraw Co., Inc.,** and **Schell Longstreth and Co.** in June, three executives of the latter firm became associates of the Hyde-Rakestraw firm. They are: Charles S. Schell, Sr. and Jr., and Frank Sabot. The New England representative of Schell Longstreth and Co. will continue to cover the same territory for Hyde-Rakestraw Co.

Nelson S. Knaggs, vice-president in charge of sales, **The Hilton-Davis Chemical Co.,** has been awarded the honorary degree of Doctor of Laws from Davis and Elkins College.

Mr. Stanley
Curtis & Marble

C. P. Roberts
Robert & Co.

Mr. Wizemann

Mr. Sullivan
National Aniline Division

Jack W. Stanley has been appointed a southern sales representative of **Curtis & Marble Machine Co.** Mr. Stanley, northern representative for the company for the past two years, is operating out of the southern office in Greenville, S. C., covering Ga., Ala., Tenn., Miss., La., and Fla. Sales representation for the northern territory is being handled under the direction of Walter F. Woodward, vice-president in charge of sales for the company at Worcester, Mass.

Robert & Company Associates has announced the promotion of two members of the organization to vice-president and a third to secretary and assistant treasurer. Named vice-presidents of the firm of architects and engineers were Charles P. Roberts and J. Moran Roberts. J. W. Vignaux has been promoted to secretary and assistant treasurer of the company. Charles P. Roberts will continue as manager of the textile engineering department. Mr. Roberts, who joined the firm five years ago, has been acting manager of that department for some time.

A new fiber application laboratory, designed to serve areas of testing and investigation, has been opened in Chesterfield, Va., by the **Allied Chemical & Dye Corp.** Equipment, consisting of looms, warpers, full-scale slashing, opening, drawing, spinning, twisting and winding, tufting and some texturizing equipment, will also be used to develop fabrics of all kinds which capitalize on the special performance values of Caprolan, Allied's polyamide fiber. Staffed by textile engineers, the laboratory is under the supervision of William E. Jennings. * * * Newly-named manager of detergent sales for the **National Aniline Division** is Leslie C. Wizemann, located in the company's general office, 40 Rector St., New York, N. Y. Paul J. Sullivan has been made resident manager of the Philadelphia sales branch of National Aniline Division. R. Robertson has retired.

Recently organized to serve textile mills within a 100-mile radius of Rock Hill, S. C., with power transmission equipment and machine shop supplies was **Manufacturers Supply Co.** Among the lines handled by this mill supply firm, which is located at 124 W. Main St., are: **Louis Allis Co.** a-c, d-c, and Adjusto-Spede motors; **Cutler-Hammer, Inc.,** motor controls; **T. B. Wood's Sons Co.,** power transmission equipment; **Intercontinental Dynamics Corp.** edge controls and other electronic equipment. Officers of the company are: president, F. A. Hipp; vice-president, Norwood McElveen; treasurer, Headen Bynum; secretary, Warren Dixon.

CHAPMAN . . . THE ORIGINAL ELECTRONIC STATIC ELIMINATOR . . . SINCE 1904

CHAPMAN
STOPS STATIC
Instantly & Completely

SAFE TO USE • NO HARMFUL RAYS
OR GASES • LOW COST OPERATION
YEARS OF TROUBLE-FREE SERVICE
EASY TO INSTALL • INEXPENSIVE

A MODEL FOR
MOST EVERY
TEXTILE
STATIC PROBLEM!

The Portland Company 22 FORE ST., PORTLAND, MAINE
WRITE FOR BULLETINS & DETAILS . . . . . *Now!*

Mr. Hollis
Roberts Co.

Mr. Greenfield
Dow Chemical

Mr. Underwood
Trust Co. of Ga.

Mr. Crocker
Belton Plowden

Mr. Taylor
Wica Chemicals

Mr. Armstrong
Morris Speizman

Charles E. Hollis has joined the sales staff of **Roberts Co.** as southwest South Carolina representative traveling out of Greenville. Mr. Hollis was formerly superintendent of the Blue Ridge Yarn Mills, division of Pendleton (S. C.) Manufacturing Co.

Appointment of Alfred Greenfield to the textile fibers department of the **Dow Chemical Company** has been made known. Mr. Greenfield, who is serving as representative of the department in New York City at Dow's offices, 45 Rockefeller Plaza, was formerly assistant sales manager of Virginia-Carolina Chemical Co. Dow has announced plans to produce Zefran, a new synthetic textile fiber, at a plant currently under construction at Lee Hall, Va. Temporary offices are located in Warwick, Va., until the plant's completion, expected early next year.

Joseph P. Underwood, formerly office manager of the factoring division of the **Trust Company of Georgia,** has been promoted to assistant treasurer of the firm.

Metlon Corp. announces that E. J. Crocker has joined the staff of Belton C. Plowden Co., sales representatives for Metlon's metallic yarns. Formerly associated with Strickland Cotton Mills, Valdosta, Ga., Mr. Crocker will represent Metlon in Ga., Ala., and Tenn.

Wica Chemicals, Inc., announces the appointment of Ralph E. Taylor as branch manager in Columbus, Ga., a position in which he will serve the states of Ala., Ga., and Tenn., giving special attention to the chemical problems of textile mills and paint manufacturers. Before joining Wica, Mr. Taylor was associated with the Borden Co. in the dyeing, finishing and sales departments.

C. L. Armstrong has joined the **Morris Speizman Co., Inc.,** and will cover the knitting mills in Tenn., Ga., Ala., Miss., and surrounding terri-

Eliminate broken filaments on Dope-Dyed Nylon with

STEIN HALL SUPRANYL

Supranyl possesses unusual adhesion properties for dope-dyed yarn where the normal polyacrylic sizes fail to render adequate loom protection against broken filaments. Light amber in color, it is readily removable in the scouring bath.

* Above material extracted from Stein Hall Technical Bulletin. Available on request.

STEIN HALL SUPRANYL*
SPECIFICATIONS:
BASE: Solution of copolymerized organic acids.
VISCOSITY: 800 plus or minus 200 cps. Brookfield at 20°C.
pH: 1
ACTIVE INGREDIENTS: 30% minimum.
COLOR: Clear to light amber.
WEIGHT PER GALLON: 9.6 pounds.
MECHANICAL STABILITY: Very good.
STORAGE LIFE: Minimum 6 months.
APPLICATION:
In the sizing of dope-dyed nylon yarns, Supranyl is diluted with cold or lukewarm water to a 2-7% concentration, depending upon the twist, denier, number of filaments in the yarn, and construction of the fabric to be woven.
Supranyl is the only warp size which adheres properly to dope-dyed nylon and covers the yarn throughout. Supranyl is the only warp size that provides adequate loom protection for dope-dyed nylon as well as natural yarns.
Field tests prove better adhesion for Supranyl than any other dope-dyed filament nylon size. Prove it to yourself. Contact Stein Hall today and our qualified technical salesman will be glad to set up a trial run in your plant.
STEIN SH HALL
285 MADISON AVENUE - NEW YORK 17, N. Y.

Hop On The Jenkins' Metlkor Bandwagon

You'll have plenty of company for Textile Mill men everywhere are using Jenkins' METLKOR Brushes for every textile brushing application. They're built better to perform better and to last longer.

JENKINS' METLKOR NAP RAISING BRUSH. Bristled with Nylon, Hog Bristle, Fibre or Mixtures.

JENKINS' METLKOR FURNISHER BRUSH. The choice of leading Textile Printers. Dupont Tynex Nylon bristle.

Specify Jenkins' METLKOR
the original . . . the best *Metal Core* brush

METLKOR®
CYLINDER BRUSHES
and LIFEWOOD® WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.
— Serving Industry for 80 Years —
332 Pompton Ave., Cedar Grove
Essex County, N. J. • CEnter 9-5150

SUPPLIERS News
WHAT THEY ARE DOING

tory. Mr. Armstrong was formerly with the Keller Machine Co.

Two application engineers at **The Bristol Co.** have received promotions. Walter E. Rufleth has been named manager of telemetering systems applications, and Kenneth R. Neale has been appointed manager of electronic products applications. Both men continue to operate out of the application engineering department at the company's Waterbury, Conn., headquarters. * * * The Newark, N. J., sales and service staff has moved into new, enlarged offices at 744 Broad Street.

Appointment of George C. Elmes as leader of a newly-established group in the fiber development department of the **Chemstrand Corp.** has been announced. Mr. Elmes who is leader for the knitting group in the throwing, knitting, and weaving section, worked with the Heller Knitting Co., in Woonsocket, R. I., before joining Chemstrand in November of 1956. Group leader appointments for throwing and weaving are to be made later. * * * Jacobus (Jack) Sanger has joined the firm as a technical sales representative. Formerly a stylist with J. P. Stevens & Co., Inc., in New York City, his duties at Chemstrand involve assisting customers in their use of Acrilan acrylic fiber and nylon. He is working out of the Decatur office. * * * W. R. Sittason has been named to the newly created post of purchasing agent for the Acrilan plant in Decatur, Ala., Mr. Sittason was formerly buyer in the purchasing department. * * * Clinton A. Dyer has been assigned to the Charlotte, N. C., office where he will be active in the southern territory on sales of Acrilan acrylic fiber and Chemstrand nylon yarn. Mr. Dyer was previously associated with National Starch Products in a sales capacity.

Continental Can Co. announces that L. P. Muller and Co., yarn distributors with headquarters in Philadelphia, will handle the distribution and sales of their Conomet metallic yarn products throughout the textile areas of the continental United States. The only Conomet sales area exceptions are Ala., Ga., Tenn., Miss., and Fla., where sales representation continues under Hoke S. Robinson of

QUALITY AND PERFORMANCE

- - - - -

"G.C." Non-Melting Lubricants have proven they are Top Quality. The "Know-how" behind the manufacture of these lubricants gives you performance — not repairs.

- - - - -

"G-C" Ben Boy Lubricant No. 55B is recommended for all type textile machinery where a grease is used. Fast, slow, hot or cold.

- - - - -

"G-C" Non-Melting oils are superior for Looms, Top rolls, General Purpose oils.

- - - - -

Working samples gladly furnished.

GEORGIA CAROLINA OIL COMPANY
P. O. Box 101 G-C Phone 2-1428
MACON GEORGIA

the Robinson Textile Co. Continental also announces that they are making deliveries on Conomet FM, their new foil Mylar metallic yarn product, now being added to their line of Conomet MM metalized metallic yarns. Edgar W. Dunham, Jr., has been appointed product sales manager for metallic yarns with headquarters in the Shellmar-Betner division offices at 530 Fifth Ave., New York, N. Y.

At the mill starch division of **Corn Products Sales Co.,** James R. Hill formerly a bulk salesman, has been promoted to branch manager of the division which sells starch and dextrine products to the paper and textile industries.

Julian H. Canady, carding technician from Dublin, Ga., has joined the Charlotte, N. C., office of **Davis & Furber Machine Co.** to advise and counsel in the application of the firm's card clothing, tapes, and aprons in Ga., Ala., Va., and the Carolinas.

Emkay Chemical Co. has appointed Henry L. Dozier as technical sales representative for Georgia and Alabama. Mr. Dozier, who was formerly dyer and superintendent of dyeing at Avondale Mills, Spencer Mills, Adelaide Mills, and Katherine Rug Mills, now works out of Dalton, Ga.

Fiber Research Corp. is offering the services of the Electronic Fiber Fineness Indicator (EFFI) for $15 per sample, the ultimate intention of the firm being to provide machines to industry on a rental basis. Following a three-month period of observation of the machine while in application to routine commercial operations, to establish cost of construction and to determine the number of units required for adequate coverage in the industry, rental terms, based on the results of the studies during this period, will be announced. Present plans are to have the first machines in operation in the field during the first quarter of 1958.

Fife Manufacturing Co. announces the appointment of J. Fred Slaughter of 300 S. Woodland Dr., Marietta, Ga., formerly southeastern representative, to the position of vice-president in charge of sales of its automatic edge guiding equipment in the several southeastern states.

The metropolitan New York sales office of **Fischer & Porter Co.,** formerly located at 139 Chestnut Street, Nutley, N. J., is now at 141 Main Avenue, Clifton, N. J., where the staff occupies a new air-conditioned building. Donald T. Cusack, divisional manager of the New York area, heads the Clifton office.

John W. Church, Jr., has been assigned to the New York City sales area of **Franklin Process Co.,** to work with S. Warren Cable, manager, and Arnold G. Dana out of the company's sales offices at 280 Madison Ave. Mr. Church was formerly associated with the yarn sales department of Collins & Aikman Corp.

A color sound slidefilm titled, "Simple Arithmetic in Packaging," on the subject of corrugated bulk containers, has been completed by **Gaylord Container Corp.,** division of Crown Zellerbach Corp. Based on several case histories, the film documents the saving in materials handling and packaging made possible

Our service is tailored to provide all the working capital any qualified client needs, witnout increased borrowing, diluting profits or interfering with management.

Information available for any manufacturer or distributor with $500,000 or more annual sales.

Textile Banking Company

55 Madison Avenue, New York 10, N.Y.

Providing operational financing for the apparel, electronics, furniture, leather, plastics and textile industries.

Subsidiaries:

T. B. C. Associates, Inc., New York Southwest Texbanc, Inc., St. Louis

SUPPLIERS News
WHAT THEY ARE DOING

by corrugated bulk containers of various types. Included are bulk containers for tufting yarn, chemicals, slab wax, and plastic pellets, to name only a few. A showing of the film can be arranged by writing Advertising Department, Gaylord Container Corp., Division of Crown Zellerbach Corp., 111 No. Fourth St., St. Louis 2, Mo.

At Black Lake, Quebec, **American Smelting and Refining Co.** is spending $32.5 millions to develop asbestos deposits underneath a lake. The deposits will add approximately 100,000 tons a year to the supply of asbestos.

James R. Wright has recently joined the staff of **Uster Corp.** as product engineer in the testing equipment department. Mr. Wright was formerly superintendent of the novelty yarns plant of Craftspun Yarns, Inc.

At **Commercial Factors Corp.** Albert O. Silverman has been named an assistant vice-president, a position in which his responsibilities have expanded to include client contact in addition to present administrative functions. Mr. Silverman, prior to 1956, was a partner in the Mercury Yarn Co., New York, N. Y., where he specialized in general administration, finance and credit.

A new chemical division has been established within the Goodyear International Corp., subsidiary of the **Goodyear Tire and Rubber Co.** The new division will handle matters relative to overseas sales of the firm's synthetic rubber and related products. Two departments within the new division—home office and field sales have been announced. R. E. Workman is manager of the division; R. S. Earhart is acting manager in the one year's absence of Mr. Workman who has been awarded a Sloan Fellowship to Massachusetts Institute of Technology. Appointed to home office positions were: J. S. Amrein, administrative assistant; O. R. Gillen, manager of technical services. W. D. Porter was named sales manager—Europe, with headquarters in London.

At the Manhattan rubber division of **Raybestos-Manhattan, Inc.**, J. E. Post is newly-named sales manager, roll coverings, for both the Neenah, Wis., and Passaic, N. J., plants, with headquarters at Passaic. Since 1952 he has been special roll sales representative for Manhattan.

A. W. Gregory has been named eastern sales manager for **Johnson Motor Lines, Inc.**, with headquarters in the company's new mid-town sales office in the Commerce Building, 155 E. 44th St., New York, N. Y. Other promotions include R. L. Healey of Pawtucket, R. I., to the position of New England sales manager; W. A. Metzke of Philadelphia, Pa., to Mid-Atlantic sales manager, and R. V. Eberwein of Philadelphia, Pa., to district sales manager, Philadelphia.

Contract has been let for construction of a 1,900 sq ft office and analytical laboratory building on Pleasantburg Drive, south of Laurens Road, in Greenville, S. C., for the **Keever Starch Co.** Completion of the expanded facilities planned to provide more convenient service to the textile mills is expected in the late fall of 1957.

C. G. Sargent's Sons Corp. has appointed John Law and Co. of 5850 West Lake St., Chicago, as sales engineering representatives for its entire line of textile machinery and industrial dryers in the Chicago, South Bend, Milwaukee area.

Robert O. Dorse and Sheridan M. Kerr have been appointed field representatives with the Pacific Coast division of the **L. O. F. Glass Fibers Co.**, with headquarters at the firm's Seattle and San Francisco offices respectively. Mr. Dorse was formerly associated with Glass Fibers, Inc., while Mr. Kerr was previously sales manager for the Merchant Shippers Association.

Newly-named sales manager of the Wheeler Washer division of **Ludell Manufacturing Co.** is Joseph N. Peters who was formerly associated with Pick Manufacturing Co.

Mellon Institute has announced the appointment of Dr. Thomas Harrison Davies as a director of research of the institution. Administrative head of the multiple fellowship sustained in the institute since 1952 by the Pittsburgh Plate Glass Co., Dr. Davies has made scientific research and its management his career. In his new position he will aid in bringing to the

NEW *Streamlined* STYLING

MODERN in color
MODERN in design
TAYLORed for you

These newly designed face-mounted models and semi-recessed types now make the Halsey Taylor line most complete! This re-styling adds a distinct touch of streamlined beauty to time-proved functional utility and supplements contemporary architectural planning. Write for catalog or see Sweet's.

The Halsey W. Taylor Co., Warren, Ohio

Halsey Taylor®
FOUNDATIONS
ENGINEERED THE BEST TO MEET EVERY SERVICE TEST

74

institution gifted scientists wishing to pursue research, particularly in solid-state physics, physical chemistry, and biochemistry, and will supervise some of these investigational activities, while pursuing personal research in biochemistry and counselling the research staff in the field of glass science.

The resignation of William D. Benson as vice-president in charge of sales of **Industrial Rayon Corp.**, has been announced. Mr. Benson had been with the firm since 1949.

Newly-named sales manager for mid and far western division of **Intex Chemical Corp.** with headquarters in Cleveland, Ohio, is William B. Mason who will have full charge of the division, offering a complete line of textile chemicals. Mr. Mason recently resigned from his post as district sales manager for Onyx Oil & Chemical Co.

Formation of a new alkali sales division to market caustic soda and other alkalis, has been announced by **Jefferson Chemical Co., Inc.**, which is equally owned by American Cyanamid Co. and The Texas Co. The new division is headed by William F. Phillips, formerly of American Cyanamid. Headquarters for the new division are at Jefferson's New York office at 260 Madison Avenue. Jefferson has assumed responsibility for sales and service of alkalis formerly marketed by Cyanamid.

At 2040 West Wisconsin Avenue, Milwaukee, Wis., **The Patterson-Kelley Co., Inc.**, has opened a branch office, headed by George A. Adlam. All of the company's product lines will be available through the new office, established to give better sales and engineering service to Wisconsin industry.

At **Reliance Electric and Engineering Co.**, four new offices have been created—three of operations groups and one in marketing. Elected vice-presidents - operations groups were William R. Hough, Walter H. Haber, and Hugh D. Luke, and to the office of vice-president - marketing, Richard A. Geuder, in addition to his vice-presidency in engineering. * * * Combination of the company with Master Electric Co. has received shareholder approval, and the consolidation will be effected by the exchange of 450,000 shares of Reliance for the assets of Master, equivalent to .67637 shares of Reliance for each share of

trim loose end threads faster with

TRIM-MASTER *de-luxe*

Speeds trimming, increases production, improves quality, eliminates trimming damages.

New twin motor unit offers custom-made nose pieces, exclusive suction regulation control and visual built-in waste container.

For further information call or write.

GINSBERG MACHINE CO., INC.

Sole International Distributors For Textile Trimming and Boarding Machine Co., Reading, Pa.

224 FIFTH AVENUE. NEW YORK 1, N.Y. OREGON 9-1700

RESEARCH and SERVICE is the formula that makes NORTH size the best buy for your mill.

High production and quality weaving are made possible by proper size, correct application and alert service.

You can call on NORTH with confidence for all three...and for assistance in all technical and practical matters relating to size.

FRANK G. NORTH INCORPORATED

MANUFACTURING CHEMISTS

Atlanta, Ga. • P.O. Box 123, Sta. A • Phone Plaza 3-2196
Marietta, Ga. • P.O. Box 92 • Phone Marietta 9-4323

The Nation's largest manufacturer of Sizing Compounds, Gums, Waxes, and other kindred products for all warp yarns.

THE NEW
5 POUND
FLETCHER
MASTER
DUPLEX
DOUBLER-
TWISTER
THREE
STYLE
PACKAGES

STRAIGHT
BOTTLE
DOUBLE-TAPER
9"
6"

THE FLETCHER WORKS INC.
2nd & GLENWOOD AVE.
PHILADELPHIA 40, PA.

AVOID
SPINNING ROOM
DISRUPTION!

There are many, many reasons and causes for machine failure presenting the costly problem of "Down-time". Some of these every day problems are unforeseen - - - BUT

the foresight of . . .
ANDERSON SHIELDS
will reduce . . .
CHIPPING — SPLITTING
BREAKING
of your . . .
SPOOLS AND BOBBINS

TEXTILE
SHIELD CO., INC.
LAWRENCE MASS., U. S. A.

Gaston County Dyeing Machine Co.'s facilities in Stanley, N. C. The modern offices and machine shop are pictured here in the foreground. Arrow at right points to the recently completed assembly plant.

Master, a firm producing fractional type a-c and d-c motors, special gear motors and other special rotating electrical equipment for industrial application.

In order to improve efficiency and offer better service to its customers, **Gaston County Dyeing Machine Co.** recently completed construction of a 33,000 sq ft assembly plant which is designed to permit production of all types of heavy equipment. The engineering department has been expanded along with production facilities, the announcement stated.

James W. Lederer, formerly in the Chattanooga, Tenn., office of **Richmond Oil, Soap & Chemical Co., Inc.,** following release by the U. S. Air Force, now heads the new southern office at 509 S. Lindell Rd., Greensboro, N. C., which covers all of the southern states.

William B. Seabrook has joined **Seabrook Transmission Co.** as project engineer and sales representative in part of Georgia and Alabama, for the firm's line of textile machinery parts and improvements. Mr. Seabrook recently completed advanced mechanical engineering work at the University of Ill.

Newly appointed manager, Magic Door Sales of Stanley Hardware, division of **The Stanley Works,** is John W. Bamert, who succeeds Charles K. Nichols, now supervisor of the sales promotion and advertising phases of Magic Door sales. Mr. Bamert had been a regional manager for consumer products at the Westinghouse Electric Supply Co.

Sales and servicing of automatic loom bobbins and other allied products of **Stedco-Southern, Inc.,** Greensboro, N. C., are now being handled exclusively by the Steel Heddle Mfg. Co. sales organization.

Frank C. Abbot, formerly technical sales representative for Reichhold Chemicals, Inc., and Bakelite, has been named Texas-Oklahoma sales representative for the **Synthane Corp.** Mr. Abbot replaces F. C. McCamly who has retired following 21 years of service with the firm.

Turbo Machine Co. has announced the purchase of the business of **Smith, Drum & Co.** Inventory and work in progress at the time of the purchase were moved to the Turbo plant. Some of the key sales and production personnel joined the Turbo organization. The Smith, Drum plant, at 4th Street and Allegheny Avenue, Philadelphia, was retained by the present owners.

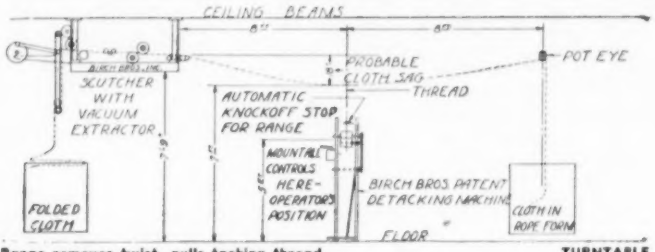
J. B. Harlow, formerly Detroit district manager, has been appointed central division manager of **Union Carbide Chemicals Co.,** division of Union Carbide Corp.

George K. Grassmyer has been assigned to the Charlotte, N. C., office of **Ashworth Bros., Inc.,** to cover the woolen trade and also handle metal belting sales. Mr. Grassmyer was formerly with the Philadelphia office.

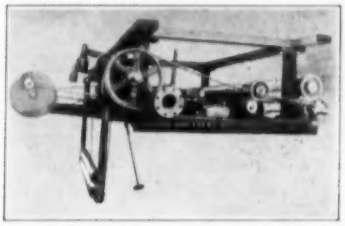
The Victor Ring Traveler Division of Saco-Lowell Shops has moved from 20 Mathewson St. to 1 Sabin St., Providence, R. I., a location with enlarged and improved office, manufacturing, and stock-handling facilities.

A weaving machine service seminar held by **The Warner & Swasey Company** to familiarize mill fixers with the latest factory servicing methods and techniques for Warner & Swasey-Sulzer weaving machines was attended by more than twice as many employees of New England

MACHINES FOR USE IN PROCESSING SYNTHETIC, BLENDS AND OTHER FABRICS



Range removes twist, pulls tacking thread, opens, extracts, folds or rolls in one continuous operation.



New Heavy Duty all Ball Bearing Cloth Opening and Folding Machine with Vacuum Extractor. All Drives by Cut Gears or Roller Chain Drive by Built-in Motor. For opening and extracting woolens, worsteds, plushes, cottons and rayons.

Patent re-enforced Adjustable Slot Vacuum Box with Handwheel adjustment and automatic ring type slot seal, gives uniform extraction, speeds drying, saves space and expensive equipment.

Single-Bar Curved Rubber Expander with increased thickness of rubber giving longer life and better stretch, and fitted with trouble-proof bushings. Also made with 3 Bars. Reasonably Priced.

FOR FINISHING SYNTHETICS

1 SEWING MACHINES
2 SINGERS
3 TRAVERSE PLAITERS
4 TURNTABLES FOR TRUCKS
5 SCUTCHERS OR CLOTH OPENERS
6 VACUUM EXTRACTORS
7 SCOURING OR CRABBING MACHINES
8 RUBBER EXPANDERS
9 QUETSCHES
10 TACKING MACHINES

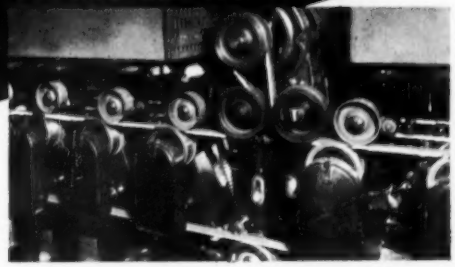
BIRCH BROTHERS, INC.

BIRCH TREE.

32 KENT STREET
SOMERVILLE 43, MASS.
Phone: PRospect 6-3512
Southern Representative:
John C. Cosby, P. O. Box 212
Greenville, S. C.

"Coronation" Sewing Machine with Motor Drive sews fabrics wet or dry. Begins sewing at the very edge of the piece. Sews all types of fabrics.

TON-TEX CONER and WINDER BELTS



Maintain full rated spindle speeds with thin, flexible, high pulley grip Ton-Tex Belt. Uniform thickness gives smooth, vibrationless operation. No stretch problems.

Factory made lapless endless to your size, or furnished in open end roll stock for vulcanizing on your machines.

The Running Mate of Ton-Tex Spinner Belting

Write For Complete Literature

TON-TEX
Reg. U. S. Pat. Off.

TON-TEX CORPORATION
31 Columbus Ave., Englewood, New Jersey
GREENSBORO, N. C. 217 Jefferson Bldg.
BOSTON, MASS. 51 Sleeper St.
30 Years Serving Industry

For Warp Sizing of Synthetic Yarns

use

VINAC* Polyvinyl Acetate Emulsions (Full Range of Grades)

FLEXBOND Copolymer Polyvinyl Acetate Emulsions

VINOL Polyvinyl Alcohol (Full Range of Viscosities in Partially Acetylated and Fully Hydrolyzed Grades)

because

these Colton chemicals have higher adhesion for synthetics than conventional materials and lower B.O.D.

*for loom finishes as well

Technical Representation by
MORETEX CHEMICAL PRODUCTS, INC.
Spartanburg, South Carolina

COLTON

COLTON CHEMICAL COMPANY
A Division of Air Reduction Company, Inc. • 1747 Chester Avenue, Cleveland 14, Ohio
Sales Offices and Warehouse Facilities Throughout U. S. • Export: Airco Co. International, New York 17, N. Y.

CLASSIFIED ADS

BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

CLASSIFIED RATES

Rates are net, payable in advance each month. Page is 3 columns, 10 inches deep—30 inches to page. Space measured by even inch vertically by 1, 2 or 3 columns in width. Column width 2⅛ inches.
Transient rate for display classified, $16.00 per inch.
Contract rate for space within 12 months period as follows:
12 inches ..... $12.00 Per Inch.

POSITION WANTED: 20c per word per insertion; minimum charge $4.00 Cash with order. Box Number address care of TEXTILE INDUSTRIES, 806 Peachtree St., N.E., Atlanta 5, Ga., count as eight words. Advertisements for help wanted, equipment for sale, for rent or wanted, and professional cards are accepted at display rates only.

FOR SALE

41—40" Saco Lowell Cards, 12" coilers, 27" doffers, 100/110 wire, Abbington Stripper motions.
1—Complete Abbington Stripping System for 55 cards, has 5 stage 550 volt 40 HP motor and pump, piping and tank.
2—10x5 Whitin-Woonsocket 1952 model G10C Slubbers with Interdraft, 7½" gauge, 120 spindles each, Bijur lubrication system, single carriage.
1—10x5 Whitin-Woonsocket 1951 model G10C Slubber with Whitin Interdraft, 120 spindles, 7½" gauge, single carriage.
1—10x5 Whitin 1939 model G10 Slubber with Interdraft, 120 spindles, 7½" gauge, single carriage.
3—No. 102 Foster 120 spindle Winders, set up for 3-30 paper cones, double motor driven.

ABOVE EQUIPMENT IN EXCELLENT CONDITION

SOUTHERN MILL SUPPLY COMPANY

BOX 83 Phone LI-66553

ATHENS, GA.

BOBBINS—BOBBINS—BOBBINS

Our specialty is good used automatic loom bobbins. We also deal in twister and roving bobbins. Send us samples of what you need or what surplus bobbins you have.

CHARLES G. STOVER COMPANY

West Point, Georgia

Check Tensions
in Yarns, Cords, Rubber
Quick Trigger Action
SAXL TENSION METER
Tensitron, Inc., Harvard, Mass.

POSITION WANTED

WEAVING SUPERINTENDENT 30 YEARS EXPERIENCE ALL TYPES OF LOOMS RUNNING ON ALL TYPES OF NATURAL AND SYNTHETIC YARNS. Reply to Box 10, TEXTILE INDUSTRIES, 806 Peachtree Street, N.E., Atlanta 8, Georgia

POSITION WANTED

YOUNG FAMILY MAN, TEXTILE SCHOOL BACKGROUND, 7 YEARS EXPERIENCE BLEACHING AND FINISHING, CONTINUOUS PEROXIDE SYSTEMS, WISHES TO RELOCATE. WILL CONSIDER TRAINING FOR OTHER PHASES OF OPERATIONS. Reply to Box 12, TEXTILE INDUSTRIES, 806 Peachtree Street, N. E., Atlanta 8, Georgia.

POSITION WANTED

Superintendent of weaving or overseer available. Experienced with all types of looms including XD, S6, Jacquards, Synthetic, Cotton, Silk Yarns. Textile School Training, plus many years of experience on all types of fabrics. Reply to Box 9, TEXTILE INDUSTRIES, 806 Peachtree St., N.E., Atlanta 8, Georgia.

FOR SALE – Good Used Spinning Frames At Low Cost

(taken in trade by Roberts Company)

40 Spinning Frames, Whitin Box Head, 3½ and 3¼ inch gauge

16 frames — 3½ inch gauge by 264 spindles
24 frames — 3¼ inch gauge by 252 spindles

Whittin Long Draft for up to 1½" cotton and 2" synthetic, Whitin Medium Gravity Spindles for 9¼" bobbin and 8" traverse, Tape Drive with Ball Bearing Cylinders, 2" rings, complete with bobbins and skewers

21 Spinning Frames, Saco Lowell Box Head, 3½ inch gauge by 240 spindles

SL Roth Long Draft, 2¼" ring, 7" traverse.

14 Spinning Frames, Fales & Jenks Box Head, 3¼ inch gauge by 264 spindles

Whitin Long Draft, Ball Bearing Cylinders, 1⅞" rings, Tape Drive.

If desired, these frames can be delivered and erected in your mill and started up by our skilled crew

All the above frames are wide gauge, equipped with Tape Drive and Long Draft. They are good buys and will produce good results as they are. They are also suitable for partial or full scale modernization, now or later, including High Draft Changeovers, Ball Bearing Spindles and increased Package Sizes, Open Type Creels and Suction Cleaning, all manufactured and serviced by Roberts Company.

ROBERTS COMPANY, Sanford, N. C.

Phone SPring 4-8811 **Cable Address: Roberts**

We also have available completely modernized Roberts Model 55R Frames in gauges from 3 inch to 4 inch and the all-new, All-Ball Bearing equipped Roberts M-I Spinning Frames. See our advertisement on Page 9.

SUPPLIERS News
WHAT THEY ARE DOING

mills than were anticipated. Conducting the seminar were Robert Whewell, Jr., service manager; Ray Swetlin, and George Strugar, service engineers.

Plans have been announced for the construction of a new manufacturing and repair plant in Charlotte, N. C., for the **Westinghouse Electric Corp.** Scheduled for completion in mid-1958, the 24,000 sq ft building will be of brick, concrete block and steel, located on a six and one-half acre site purchased by the firm two years ago. * * * C. P. Walker, formerly assistant to the manager of the industrial department, has been appointed industrial manager, southwestern region.

Morris A Kimmel has joined the **Colton Chemical Co.**, a division of Air Reduction Co., Inc., as New England sales representative. Base of his operations and warehousing of the firm's products, polyvinyl alcohol, acetate emulsions, acetate beads, and copolymer emulsions, widely used in the textile, paint, paper and other industries, are in the Boston, Mass., area. Mr. Kimmel had been sales representative for American Resinous Chemicals Corp., American Polymer Corp. and the chemical division of The Borden Co.

L. A. Whitney Co., Inc., 50 Kearney Road, Needham, Mass., has been named a distributor for the **Baker-Raulang Co.**, and will handle Baker's complete line of gas, electric and LPG fork lift, platform, and crane trucks, as well as the Traveloader side-loading fork lift truck. Demonstration and service facilities and a complete stock of parts will be maintained.

"Pound Foolish"

(from page 111)

$300,000 requested by manufacturing. Most likely, however, manufacturing would be granted the $300,000 before sales and accounting could get the $30,000 they wanted. In a good many instances aren't we letting the tail wag the dog?

IMPORTS are definitely disturbing our domestic market, and it might be well to inject this matter into our catalog of textile troubles. Since Honduras imports no bananas, Brazil no coffee, Germany no harmonicas, Spain no olives, Norway no sardines, Russia no furs, Cuba no sugar cane, and France no champagne, why in the name of common sense do we sit back and let a bunch of star-gazing, bubble-headed, satchel-mouthed mountebanks flood this nation with textiles from overseas?

The answer to this, of course, is very simple. The strong prey upon the weak. If we let our own customers push us around, isn't the Government going to push us around too? If ever an industry needed men of intelligence, skill, ingenuity, and just plain, old-fashioned guts, the textile industry needs those men now. If the petroleum industry, the steel industry, and other industries can take care of themselves, why can't we take care of ourselves?

The time for action is now! The house of textiles can and must be placed in order. While sharp trading buyers and an unfriendly government are working us over with the one-two punch, it is not beyond the realm of possibility for organized labor to step in and deliver the *coup de grace* that will leave this nation entirely dependent upon imported textiles.

Let's review our methods. If we are not up-to-date, we had better take steps to get that way in a hurry. If our staff can do the job, let's get them started on it at once. If they can't, we had better call in a consultant. It is better for us to call in doctors than for our wives to call in undertakers.

STATIC can be eliminated . . . safely, inexpensively. SIMCO makes a complete line of "Midget" static eliminators, including high efficiency static bars for warpers and creels, and special easy-to-clean bars for cards and garnetts. *All are guaranteed* to be effective! Write for facts.

the SIMCO company
920 Walnut St., Lansdale, Pa.

SALESMAN WANTED

To sell garnetted fibers. Knowledge of textile fibers essential—sales experience preferred. Reply in writing only, stating experience, age, and starting salary expected. Excellent opportunity for right man with salary limited only by ability to produce.

STAR WOOLEN CO.
Cohoes N. Y.

INDUSTRIAL ENGINEERS
Specializing in Textiles since 1914

MODERNIZATION PROGRAMS
PLANT LAYOUTS
MANAGEMENT PROBLEMS
WORK LOAD STUDIES
COST REDUCTION REPORTS
COST SYSTEMS
SPECIAL REPORTS

RALPH E. LOPER CO.
GREENVILLE, S.C. Dial 2-3868
FALL RIVER, MASS. Dial OSborne 6-8261

ADVERTISER'S INDEX

A

Adams, Inc. ... *
Advertising Council, Inc. ... *
Aldrich Machine Works ... 31
Alemite Division, Stewart Warner Corp. ... *
Allegheny Ludlum Steel Corp. ... 75
Alliance Color & Chemical Co. ... 199
Allied Chemical & Dye Corp.—Nitrogen Div. ... *
Allis-Chalmers Mfg. Co. ... 12
American Air Filter Co. ... *
American Aniline Products, Inc. ... *
American Associated Consultants, Inc. ... 270
American Cancer Society ... *
American Cyanamid Co. ... 96
American Enka Corp. ... 263
American Lava Corp. ... 29
American Moistening Co. ... 7
American Monorail Co., Inc. ... 176
American Red Cross ... *
American Viscose Corp. ... 228
Andrews & Goodrich Division ... 64
Antara Chemicals, General Aniline & Film ... *
Arkansas Company, Inc. ... 40
Armstrong Cork Co. ... 52, 53
Ashworth Bros., Inc. ... 220
Askania Regulator Co. ... 38
Atkinson, Haserick & Co. ... 21
Atlanta Belting Co. ... 247
Avondale Mills, Inc. ... 214

B

Bahnson Co. ... *
Barber Colman (Textile Div.) ... 186
Becco Chemical Division ... 2
Bendix Aviation Corporation (Eclipse Machine Division) ... 89
Best & Co., Inc., Edward H. ... *
Bijur Lubricating Co. ... *
Birch Bros., Inc. ... 281
Booth Co., Benjamin ... 6
Borne Chemical Co. ... *
Branson Company ... 68
Brook Motor Corp. ... *
Bryant Chemical Corp. ... 112
Buffalo Forge Co. ... 60
Buffalo Pumps, Inc. ... *
Butterworth & Sons, Co., H. W. ... *

C

Carbic Color & Chemical Co., Inc. ... 79, 80
Carrier Corporation ... *
Carter, Inc., A. B. ... *
Celanese Corp. of America & Subsidiary Cos. ... 196
Chandler Mach. Co. ... *
Chavis Textile Sales Co. ... *
Chemstrand Corporation (Acrilan) ... 180, 181
Ciba Company, Inc. ... *
Classified Ads ... 282
Clayton Co., J. M. ... 22
Cleveland Tramrail Division, The Cleveland Crane & Engr. Co. ... 190
Clipper Belt Lacer Co. ... 30
Cocker Mach. & Fdry. Co. ... 78
Cole Co., R. D. ... *
Colgate-Palmolive Co. ... *
Collins Bros. Mach. Co. ... *
Colton Chemical Co. ... 281
Corn Products Refining Co. ... 93
Cosa Corporation ... *
Courtaulds ... 184
Curlator Corp. (Textile Div.) ... 61
Curtis & Marble Machine Co. ... *
Custom Scientific Instruments, Inc. ... *

D

Darnell Corp., Ltd. ... *
Dary Ring Traveler Co. ... 41
Davis & Furber Mach. Co. ... 26
Dayton Rubber Co. ... 226, 227
Denman Textile Rubber Div. ... 237
Diehl Mfg. Co. ... Second Cover
Dinkler Hotels ... *
Dodge Mfg. Corp. ... 90
Dommerich & Co., L. F. ... *
Dow Chemical Company ... 49, 192
Draper Corporation ... 1
Dronsfield Bros., Ltd. ... 265
Du Pont de Nemours & Co., Inc., E. I. (Dyestuff Div.) ... 251
Du Pont de Nemours & Co., Inc., E. I. (Electrochemicals Dept.) ... 72, 73
Du Pont de Nemours & Co., Inc., E. I. (Textile Fibers Div.) ... 82, 83

E

Eastman Chemical Products, Inc. ... 286
Eaton Mfg. Co. ... *
Esso Standard Oil Co. ... 19
Exact Weight Scale Co. ... *

F

Fafnir Bearing Co. ... *
Fairbanks, Morse & Co. ... 50
Fairtex Corporation ... 68
Fancourt & Co., W. F. ... 201
Feedrail Corporation ... *
Felton & Son Co., S. A. ... 267
Ferguson Gear Co. ... 249
Fidelity Machine Company ... 215
Finnell System, Inc. ... 56
Firestone Tire & Rubber Co. ... *
Fletcher Works, Inc. ... 280
Foster Machine Co. ... 182
Foxboro Company ... 84
Franklin Process Co. ... 206

G

Garland Mfg. Co. ... 62
Gaston County Dyeing Machine Co. ... 36
Gastonia Textile Sheet Metal Works ... 242
Gates Rubber Co. ... *
Gaylord Container Corp. Div. of Crown Zellerbach Corp. ... 27
General Dyestuff Corp. ... 45
General Elec. Co., Nela Park ... *
General Radio Co. ... *
Georgia-Carolina Oil Co. ... 276
Gessner Co., David ... 238
Ginsberg Machine Co. ... 279
Goodrich Chemical Co., B. F. ... 81
Goodyear Tire & Rubber Co., Inc. (Chemical Prod.) ... 5
(Industrial Prod. Div.) ... 25
Guider Specialty Co. ... *
Gulf Oil Corp. ... *

H

Harshaw Chemical Co. ... 91
Hart Products Corp. ... 20
Hartford Machine Screw Co. ... 18
Hayes Industries, Inc. ... *
Herbert Products, Inc. ... *
Hercules Powder Co. ... *
Herr Mfg. Company ... 269
Hinde & Dauch Paper Co. ... *
Hobbs Mfg. Co. ... 246
Howard Bros. Mfg. Co. ... *
Hubinger Co. ... 63
Hunter Machine Co., James ... 44
Hyatt Bearing Division ... 15
Hyster Company ... 54

I

Ideal Industries, Inc. ... 232
Ideal Mach. Shops, Inc. ... *
Industrial Rayon Corp. ... 58, 59
International Salt Co. ... *
Intertex Corporation ... 271

J

Jacobs Northern Div., E. H. ... 13
Jenkins' Sons, Inc., M. W. ... 276
Johnson Corp. ... 267

K

Keever Starch Company ... 224
Kelley & Co., O. G., William Allen Son's Co., Div. ... 269
Kidde Mfg. Co., Inc. ... 51, 65

L

Lane & Bros., Inc., W. T. ... 259
Laurel Soap Mfg. Co. ... *
Lazenby & Co., F. A. ... *
Lockwood Greene Engineers ... *
Logan Co. ... 42
Loper Co., Ralph E. ... 283
Louden Machinery Co. ... *
Ludell Mfg. Co. ... *

ADVERTISER'S INDEX

M

Maguire & Co., Inc., John P. ..... *
Marshall & Williams Corp. 244
Marx Co., Clarence J. ..... *
McCandless Corp., The 237
McDonough Power Equipment, Inc. 48
Meadows Mfg. Co. 69
Meese, Inc. ..... *
Merrow Machine Co. 243
Metro-Atlantic Chemical Co., Inc. ..... *
Miller Corporation, Harry ..... *
Milton Machine Works ..... *
Minnesota Mining & Mfg. Co. ..... *
Mirco Switch, a Division of Minneapolis-Honeywell Regulator Co. 95
Monsanto Chemical Co. 77
Monticello Bobbin Co. 247
Moretex Chemical Co. 259
Morton Machine Works 46, 47
Morton Salt Co. 37
Mount Hope Machy. Co. ..... *
Muller, Messrs. Franz ..... *

N

National Aniline Division Allied Chemical & Dye Corp. 10, 11
National Business Publications, Inc. ..... *
National Ring Traveler Co. ..... *
National Starch Prod., Inc. ..... *
National Vulcanized Fibre Co. 94
Naugatuck Chemicals Div. ..... *
Nemo Industries, Inc. 240
New Departure Div. 178
New York & New Jersey Lubricant Co. 273
Nitrogen Division, Allied Chemical & Dye Corp. ..... *
Nopco Chemical Co. ..... *
North, Inc., Frank G. 279

O

Oakite Products, Inc. 248
Olin Mathieson Chem. Corp. ..... *
Onyx Oil & Chemical Co. 267

P

Pabst Brewing Company ..... *
Parks-Cramer Co. 32
Patterson-Kelly Co., Inc. 194
Penick & Ford, Ltd., Co. ..... *
Perfecting Service Company ..... *
Perkins & Sons, Inc., B. F. ..... *
Pittsburgh Corning Corp. ..... *
Pneumafil Corporation 23
Portland Co. 274
Powell Valves 110
Precision Gear & Machine Co. 168
Proctor & Gamble Distributing Co. 100
Proctor & Schwartz, Inc. 208

R

RCA Engineering Products Div. 245
Reiner, Inc., Robert 212
Reliance Elec. & Engineering Co. ..... *
Reynolds Metals Co. Aluminum Yarn Div. 74
Rhoads & Sons, J. E. ..... *
Richards-Wilcox Mfg. Co. ..... *
Ridge Tool Company ..... *
Riggs & Lombard, Inc. 102
Robbins & Myers, Inc. 230
Robert & Co., Associates, Inc. ..... Front Cover
Roberts Co. 9
Rohm & Haas Co. 43
Rose Company, Bennett ..... *
Ross Engr. Corp., J. O. 64
Roy & Sons Co., B. S. 272
Royce Chemical Co. ..... Fourth Cover

S

Saco-Lowell Shops 57, 216
Sandoz Chemical Works ..... *
Saran Yarns Company 188
Sargent's Sons Corp., C. G. ..... *
Scheer Co., Inc., Geo. ..... *
Scholler Bros., Inc. ..... *
Scott Testers, Inc. 214
Scott & Williams, Inc. ..... *
Sealol Corp. 265
Seydel-Woolley & Co. 35
Shawinigan Resins Corp. ..... *
Sheffield Corp. 248
Simco Company 283
Sims Company ..... *
Sims Metal Works 71
Sinclair Refining Co., Inc. ..... *
Sirrine & Co., J. E. ..... *
Smith, Drum & Co. ..... *
Solvay Process Division, The Allied Chemical & Dye Corp. 24
Sonoco Products Co. 76
Southern Airways Co. 98
Southern Belting & Transmission Co. ..... *
Southern Shuttles Div. 8
Southern States Equip. Corp. 54, 55
Staley Mfg. Co., A. E. 233
Standard Brands, Inc. ..... *
Standard Chemical Prod., Inc. ..... *
Standard Oil Co. (Kentucky) 234
Star Woolen Co. 283
State of Georgia, Dept. of Commerce ..... *
Stauffer Chemical Co. 218
Steel Heddle Mfg. Co. 8
Stein, Hall & Co., Inc. 275
Stowe-Woodward, Inc. ..... *
Swift & Company ..... *

T

Taylor Co., Halsey W. 278
Taylor Instrument Companies 104
Tennant Co., G. H. 229
Tennessee Corp. 14
Terrell Co. 33
Texas Co. ..... *
Textile Banking Co. 277
Textile Industries ..... *
Textile Machine Works 210
Textile Paper Products, Inc. ..... *
Textile Shield Co., Inc. 280
Textile Shops ..... *
Textile Specialty Co., Inc. 250
Thomaston Mills 259
Ton-Tex Corp. 281
Tool Service Engineering Co. ..... *
Torrington Co. 204
Treasury Department ..... *
Truscon Laboratories ..... *
Trust Company of Georgia 107
Turbo Machine Co. 222

U

U. S. Ring Traveler Co. 70
U. S. Textile Mach. Co. ..... *
(Naugatuck Chemicals Div.)
(Naugatuck Chemicals Div.) ..... *
Universal Winding Co. ..... *
Uster Corporation 16, 17

V

Veeder Root, Inc. ..... Third Cover
Vickers, Inc., Division of Sperry Rand Corp. 28
Victor Ring Traveler Co. 106

W

Wallerstein Co., Inc. 261
Want Ads 282
Warner & Swasey Co. 92
Watson & Desmond ..... *
West Point Fdy. & Mach. Co. 252
Westinghouse Electric Corp. Apparatus Division 108
Lighting Division 257
Whitin Machine Works 39
Whitinsville Spinning Ring Co. 250
Wica Chemicals, Inc. ..... *
Wicaco Machine Corp. 261
Wildman-Jacquard Co. 202
Wonalancet Company 265
Wyandotte Chemicals Corp. 66, 67

Y

Young Aniline Works, Inc. 269
Young Machine Co., F. A. ..... *

Z

Zinsser & Co., Inc. 91

Eastman 50

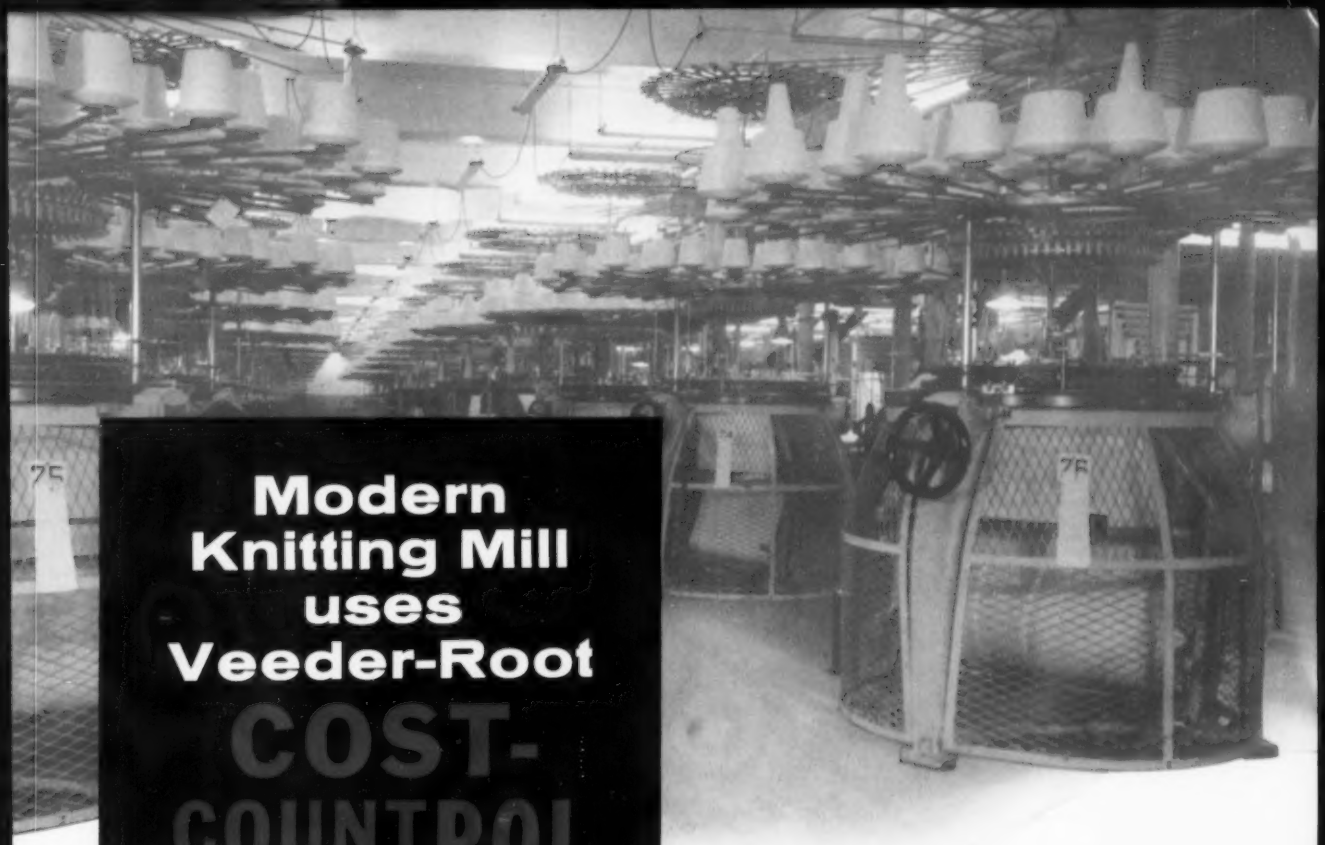
THE NEW IMPROVED ACETATE YARN

A busy number with mills and converters

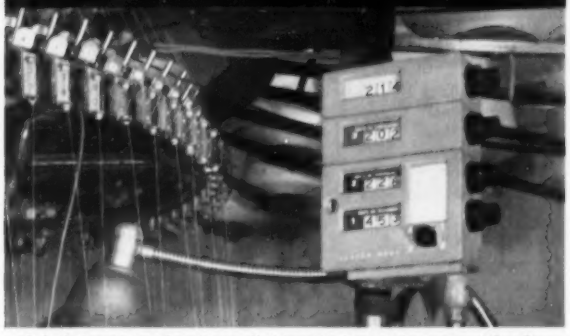
Here's why: wherever you normally use acetate you'll get a fuller, richer look with Eastman 50. Try it and see. Crepes have a lush full-bodied hand . . . a resilience and drapability that are top news in fashion today. Taffetas have a rich feel and pearly luster they never had before. Satins take on new smoothness and body. One reason is the added covering power of Eastman 50 . . . from 5% to 10% more than regular acetate. Why not discover what this busy number can do for your line?

Eastman 50 comes in bright and dull luster Estron® and in Chromspun® black. Same deniers, twists, put-ups and price as regular Eastman acetate yarns. Ask your nearest Eastman representative.

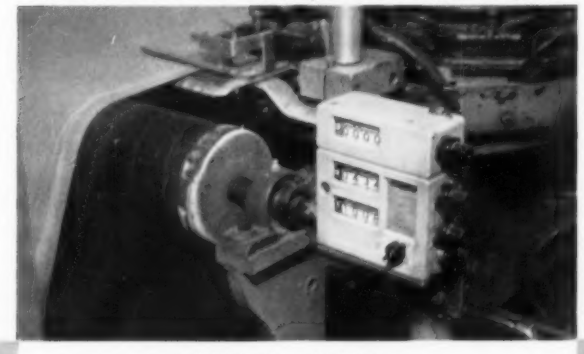
EASTMAN CHEMICAL PRODUCTS, INC., SUBSIDIARY OF EASTMAN KODAK COMPANY, 260 MADISON AVENUE, NEW YORK 16, N.Y.



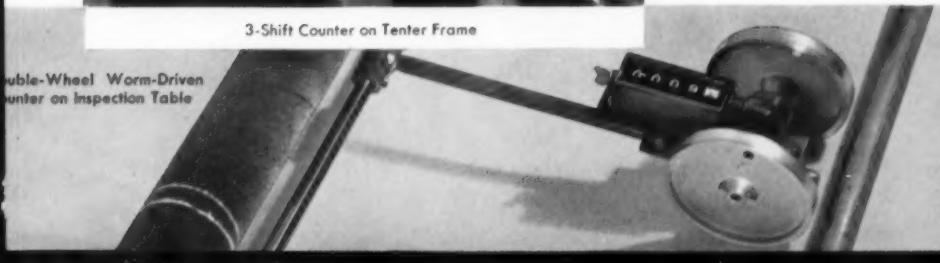
Modern Knitting Mill uses Veeder-Root COST-COUNTROL



3-Shift Revolution Counter on Knitting Machine at Lawrence Mfg. Co.



3-Shift Counter on Tenter Frame



uble-Wheel Worm-Driven unter on Inspection Table

to Speed Production . . . Save Time . . . Eliminate Errors

You'll see 2-3-4 Convertible Revolution Counters on every knitting machine in the high-production mill of the Lawrence Manufacturing Co., Lowell, Mass., division of Ames Textile Corporation.

On the basis of "facts-in-figures" supplied by these Veeder-Root Counters, workers are paid "by the numbers" which simplifies paperwork, provides incentives, and shows workers their exact earning status at all times.

That's why Veeder-Root Cost-*Count*rol is an important factor in the production of Lawrence's top-quality knit goods. Find out the advantages *your* mill can gain by using the same simple basic system. A Veeder-Root engineer will be glad to show you how . . . any time you say. Write:

Veeder-Root
INCORPORATED
"The Name that Counts"

Hartford, Conn. • Chicago
Greenville, S. C.
New York • Los Angeles
San Francisco • Montreal
Offices and Agents in Principal Cities.

+ STABILITY
+ EFFICIENCY
+ VERSATILITY
= ECONOMY...

IN DISCHARGE
and VAT PRINTING

DISCOLITE®

CONCENTRATED
SODIUM SULPHOXYLATE
FORMALDEHYDE

- Because of its high stability, Discolite loses the minimum of discharge power during drying.
- High temperature efficiency means practically no loss of strength at high temperatures.
- Versatility assures an equally fine performance in either white or colored discharge printing.

Exclusively Royce, Discolite is produced under strict laboratory controls that guarantee a safe, uniform quality. Specify it for your next discharge or vat printing job.

ROYCE CHEMICAL CO.

Royce

CHEMICAL COMPANY • CARLTON HILL, NEW JERSEY

Manufacturers of Chemicals for the Textile Industry